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Archives of Dermatology and Syphilology

VOLUME 15 MARCH, 1927 NUMBER 3

THE ETIOLOGY OF MADUROMYCOSIS

WITH A MYCOLOGIC REPORT ON TWO NEW SPECIES OBSERVED IN THE UNITED STATES *

JOHN A. GAMMEL, M.D.

CLEVELAND

The term maduromycosis was created in 1916 by Chalmers and Archibald [1] for those forms of mycetomas which possess grains composed of large segmented hyphae with well defined walls and usually chlamydospores. The subject of mycetoma, or Madura foot, has been in a confused condition in the past because there was not a clear conception of the exact meaning of this term and of the great number of organisms found associated with this disease. Brumpt, Pinoy, Langeron and Chalmers with his collaborators, as well as others, have advanced the knowledge of this rare and interesting condition, and their researches on the etiologic agents have demonstrated the surprising fact that this clinical entity of rather uniform character may have a great variety of causes. The classification now used will probably be better understood if a short review of the evolution of the knowledge of this disease is given.

HISTORICAL NOTES

Castellani and Chalmers [2] give a full account of the history of mycetoma and its subgroups. Only those investigations which actually promoted the knowledge are reported here. The question of diseases described in the literature of ancient India (Sanscrit) or by Kaempfer,[2] 1712, which were probably mycetomas, will not be discussed. The history of mycetoma begins with the report of Gill [2] of Madura, who in 1842 described a condition of the foot characterized by marked deformity and fungoid excrescences, from which flowed an offensive ichorous discharge, while internally, the joints, cartilages and ligaments

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1. Chalmers, A. J., and Archibald, R. G.: A Sudanese Maduromycosis, Ann. Trop. Med. **10**:169 (Sept.) 1916.

2. Castellani, A., and Chalmers, A. J.: Manual of Tropical Medicine, ed. 3, New York, William Wood & Co., 1919, pp. 2110-2145 and 967-1033.

were destroyed. In 1845, Godfrey,[2] at Bellary in India, found considerable black deposits resembling fragments of coal, in an amputated foot affected with "ulcus grave." He designated the disease as "morbus tuberculosis pedis," and considered the black grains an accidental product. Colebrook,[2] 1846, confirmed the observations of Gill and said that this disease was commonly known as "Madura foot." Madura is a town in India, situated in the southern part of Deccan, at the foot of the Eastern Ghats. Banzonji Rustomji,[2] 1858, as the first one, differentiated two forms of this disease; i. e., one had a dark, thick substance, while the other showed soft, yellowish granules.

At present, it seems astonishing that the fungal origin of this disease was not recognized by some one at a time when mycology was much studied. It must be kept in mind, however, that although the parasitism of certain fungi plants had already been recognized in the seventeenth century, and although Remak [3] had produced favus on his forearm with *Achorion schoenleinii* in an auto-experiment, the pathogenicity of plant parasites in man was doubted. Even some prominent investigators considered such fungal parasites as secondary invaders of already diseased tissue.

Therefore, systematic researches probably were not made in this direction until Vandyke Carter,[2] in 1860, began his classic observations on the black and yellow varieties of Madura foot. He established definitely the fungal nature of the grains by microscopic examination, and proposed, therefore, the designation "mycetoma" (*μύκης* fungus, *οἴδπμα* tumor).[4] His cultural attempts were less successful. From a black grain he grew a pink mold which was termed by Berkeley [2] in 1862, *Chionyphe carteri,* and which for a long time was considered the cause of mycetoma. Carter made a most exhaustive study on mycetoma during the next twenty-five years, and in 1886 reached the conclusion that *Chionyphe carteri* was a contamination and had nothing to do with the disease. He drew attention to the similarity between the ray-fungus which had been discovered by Harz in 1877 and that of mycetoma. Although Carter had found black, yellow or white, and red grains, the general opinion was that these were one and the same process. Bassini [5] in 1888 studied a case of black grain mycetoma in Italy. He believed that the causative organism was an ascomycete since he could not observe any organs of fructification.

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3. Remak: Diagnostische und pathogenische Untersuchungen, Berlin, 1845; VII, Muscardine und Favus (Porrigo lupinosa), p. 193-215, quoted by Sabouraud, R.: Les Teignes, Paris, Masson & Cie, 1910, p. 12.

4. The French explanation (Brumpt) of the second part of this word *ὠμός*, cruel, seems to us less plausible. Sarcoma, carcinoma, granuloma, should be compared as analogous to mycetoma.

5. Bassini, E.: Un caso di micetoma al piede o piede di Madura, Arch. per le ac. med., 1888, vol. 12, quoted by Oppenheim (footnote 50).

Kanthack [2] in 1893 studied the yellow and black mycetomas. He concluded that the yellow variety agreed with actinomycosis, but attempted to prove that the black granules were the same organism only in a degenerated condition. Unna,[2] who examined Kanthack's specimens, said that important distinctions separated the two fungi, and that there was not any question of their identity.

Boyce and Surveyor, 1894,[2] established definitely the fact that the black and yellow varieties of mycetoma are caused by different organisms. They recognized the ochroid variety in many instances as being an actinomycosis.

The same year Vincent,[6] in Algiers, isolated from a mycetoma with ochroid grains, an organism which he called in 1896 *Streptothrix madurae*. This organism was thoroughly investigated and observed by numerous other authors. The name *Streptothrix*, however, could not stand, for this term was already given by Corda (Prag), 1839,[2] to another entirely different fungus, *Streptothrix fusca*. Therefore, in the leading systems of mycology (Saccardo,[7] Clements [8]), the term *Streptothrix* is found to be employed as a generic name for the organism described by Corda. This point was emphasized constantly by Pinoy,[9] Castellani,[2] Lehmann [10] and others; nevertheless, the name *Streptothrix* still appears in textbooks of medicine as a synonym for *Hyphomycete* or *Actinomyces*. For the reasons set forth above, the organism discovered by Vincent became *Actinomyces madurae*, Vincent, 1894.

J. H. Wright [11] of Boston, in 1898, isolated a hyphomycete from the black granules of a mycetoma. Unfortunately, the organism died out before its mycologic characteristics were investigated sufficiently to permit classification.

Laveran,[12] in 1902, studied the black variety of mycetoma, on which Chabaneix, Bouffard and Brumpt [13] had already reported in 1901, and named the fungus demonstrated in the grain, *Streptothrix mycetomi*.

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6. Vincent: Étude sur le parasite du "Pied de Madura," Ann. de l'Inst. Pasteur **8**:129 (March) 1894.

7. Saccardo, P. A.: Sylloge Fungorum omnium hucusque cognitorum **4**:282.

8. Clements, F. E.: The Genera of Fungi, Minneapolis, H. W. Wilson Company, 1909, p. 148.

9. Pinoy, E.: Actinomycoses et Mycétomes, Bull. de l'Inst. Pasteur **11**:929 (Nov. 15) 1913; **11**:977 (Nov. 30) 1913.

10. Lehmann, K. B., and Neumann, R. O.: Bakteriologische Diagnostik, ed 6, Munich, J. F. Lehmann, 1920, part 2, p. 157-158.

11. Wright, J. H.: A Case of Mycetoma (Madura Foot), Tr. A. Am. Phys. **13**:471, 1898.

12. Laveran, M. A.: Au subjet d'un cas de Mycétome â grains noirs, Bull Acad. de méd., Paris **47**:773, 1902.

13. Quoted by Brumpt (footnote 14).

Cultures were not made. The same year Bouffard [13] observed a Madura foot with black grains, in Djibouti. He and Brumpt found in sections of the tissue, typical *Aspergillus* heads, in consequence of which Brumpt termed the organism *Aspergillus bouffardi* in 1906. Bouffard,[13] in 1906, isolated and cultured also from a white grain mycetoma *Actinomyces somaliensis*, which was quite different from *Actinomyces madurae*. At the same time Brumpt [13] studied two other cases of the white grain variety, and found two organisms which certainly could not be considered as *Actinomyces*. He created for them the provisional genus *Indiella*. The preparations from the grains showed septate mycelial filaments with multilocular chlamydospores.

Brumpt,[14] in 1906, reviewed the entire subject of mycetoma in an important and exhaustive paper. He collected eight different organisms from the literature and his own observations. For the unidentified hyphomycete of the black grain variety, he proposed the provisional generic name *Madurella*, and changed the term *Streptothrix mycetomi* to *Madurella mycetomi* Laveran, until cultural studies might warrant a different classification.

During the next ten years a number of mycetomas were analyzed, and cultures of the causative organisms were studied and classified. It was found not only that the black, white and red variety were caused by different fungi, but also that each variety could be produced by widely different causative agents.

Pinoy [9] proposed, in 1913, to call the mycetomas caused by an *Actinomyces* actinomycoses, and to reserve the term "mycetoma" for those conditions caused by true molds.

Chalmers [1] and his co-workers, after careful personal research and study of the literature, in 1918, presented a classification which up to the present fulfills all requirements; and their definitions have given a clear conception of the disease, and an exact differentiation from allied conditions. Chalmers and Castellani [2] include in the term "mycetoma" all growths and granulations which produce enlargement, deformity or destruction of any portion of the tissues in man or animals, and which are caused by the invasion of the affected area by fungi belonging to different genera and species, which produce bodies in varying dimensions, color and shape, composed of hyphae, and sometimes chlamydospores embedded in a matrix. These bodies, which are capable of giving rise to mycelial filaments, on germination, are termed "grains" and are found either embedded in the pathologic tissue forming the growths and granulations, or escaping freely in the discharge therefrom. In addition, eosinophil bodies can usually be seen.

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14. Brumpt, E.: Les Mycétomes, Arch. de parasitol. **10**:489, 1906.

Chalmers and Archibald [1] subdivided the mycetomas in the following groups:

1. *Actinomycoses.*—They are those forms of mycetoma with grains composed of fine nonsegmented mycelial filaments, in which usually the walls are not clearly defined from the contents, and in which chlamydospores are absent.

2. *Maduromycoses.*—They are those forms of mycetoma with grains composed of large segmented mycelial filaments possessing well defined walls, and usually chlamydospores.

It will be noted that the presence of definite grains separates the mycetomas from the pseudomycetomatous conditions as caused by *Sporotrichum, Framboesia tropica* and *Angiokeratoma,* as well as from paramycetomas (Castellani) produced by fungi of the type of a *Leptothrix.*

Vuillemin [15] proposed to replace the term maduromycosis by hyphomycetoma and actinomycosis by micromycetoma, but the term "hyphomycetoma" had been employed previously by Magelhães,[16] in another sense, and actinomycosis is too popular to be changed. Madura foot is now a synonym for mycetoma of the foot, but it should not be employed in general. Chalmers and Archibald's classification is now rather generally adopted and found in the recent works of Brumpt,[17] Langeron [18] and Castellani and Chalmers.[2]

ETIOLOGY OF MYCETOMA

Actinomycosis.—All actinomycoses are caused by organisms belonging to the genus *Actinomyces.* While K. B. Lehmann [19] places it between *Schizomycetes* and *Hyphomycetes,* Vuillemin considers it as belonging to *Hyphomycetes.* The English call it *Nocardia,* the French call it *Discomyces,* while the world literature terms the disease "actinomycosis." [19] The report of the Committee of the Society of American Bacteriologists on Characterization and Classification of Bacteria is regarded in this country as the ultimate authority on bacterial nomenclature and, therefore, *Actinomyces,* Harz (1877), is accepted as the generic name; this name is also used by German bacteriologists. According to

15. Vuillemin, P.: Remarques sur les mycétomes; hommage á la mémoire de M. Jolly, Arch. de méd. expér. et d'anat. path. **28**:446, 1919, quoted by Langeron (footnote 18).

16. Magelhães, quoted by Langeron (footnote 18).

17. Brumpt, E.: Précis de Parasitologie, ed. 3., Paris, Masson & Cie, 1922.

18. Langeron, M., "Mycétomes," in: Nouveau traité de médicine, Paris, Masson & Cie, 1922, part 4, 404-429.

19. The question of nomenclature—actinomyces, streptothrix, nocardia or discomyces—is discussed extensively by Miescher (footnote 32) and Castellani and Chalmers (footnote 2).

this report, it belongs to the class *Schizomycetes,* order D, *Actinomycetales,* Buchanan, 1917, genus 3. *Actinomyces,* Harz, 1877, is defined by H. J. Conn [20] as follows:

> Organisms growing in form of a much branched mycelium, which may break up into segments that function as conidia. Sometimes parasitic, with clubbed ends of radiating threads, conspicuous in lesions in animal body. Some species are microaerophilic or anaerobic. Non-motile. The type species is *Actinomyces bovis,* Harz.

To attempt the differentiation of all known species of the genus *Actinomyces* would be beyond the scope of this paper. Reference is made here to Bergey's Manual,[21] and to the excellent studies of Wright [22] in this country, and of Chalmers and Christopherson.[23] The following list contains only those species which have been isolated from cases presenting the clinical picture of Madura foot or mycetoma in the old sense.

1. *Actinomyces bovis,* Harz, 1877, observed by Yazbek [24] in three cases of mycetoma in São Paulo, Brazil. In all three cases the ankle region of one leg was involved, as the pictures in Yazbek's exhaustive monograph show.

2. *Actinomyces mexicanus,* Boyd and Crutchfield,[25] 1921. This organism was found in a case observed by E. D. Lovejoy and R. W. Hammack [26] in Los Angeles. White or slightly yellowish granules were discharged from the sinuses, and amputation was considered necessary.

3. *Actinomyces asteroids,* Eppinger, 1890, found by Musgrave and Clegg [27] in typical Madura foot in a native in the Philippine Islands. They termed it first *Streptothrix freeri,* but stated later the identity with

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20. Conn, H. J.: The Families and Genera of the Bacteria, J. Bact. **5**:191 (May) 1920.

21. Bergey, D. H.: Bergey's Manual of Determinative Bacteriology, ed. 2, Baltimore, Williams & Wilkins Company, 1925, p. 345-398.

22. Wright, J. H.: The Biology of the Micro-Örganism of Actinomycosis, J. M. Research **13**:349 (May) 1905.

23. Chalmers, A. J., and Christopherson, J. B.: A Sudanese Actinomycosis, Ann. Trop. Med. **10**:223, 1916.

24. Yazbek, A. K.: Dos Mycetomas, These Inaugural, São Paulo, 1920; Secção de Obras do "Estado de São Paulo."

25. Boyd, M. F., and Crutchfield, E. D.: A Contribution to the Study of Mycetoma in North America, Am. J. Trop. Med. **1**:215 (July) 1921.

26. Lovejoy, E. D., and Hammack, R. W.: Mycetoma: Report of Four Cases, Arch. Dermat. & Syph. **11**:71 (Jan.) 1925.

27. Musgrave, W. E., and Clegg, M. T.: The Etiology of Mycetoma: Report of a Case of the Ochroid Variety Occurring in the Philippine Islands and Caused by a New Species of Streptothrix (Streptothrix freeri), Philippine J. Sc. (sec. B) **2**:477, 1907. This work contains an excellent and complete bibliography with more than 300 references.

A. asteroides; amputation was necessary. Inoculations in monkeys (*Macacus philippensis*), dogs and guinea-pigs were positive. Lindenberg [28] found the same organism from 1909 to 1920, in seven cases of mycetoma on the lower extremities. He described it as *Discomyces brasiliensis*, Lindenberg, in 1909, but Chalmers and Christopherson,[23] Castellani,[2] Brumpt [17] and Pinoy [9] consider it identical with *A. asteroides*. This organism has also been observed in mycetoma in Argentine and Europe.

4. *Actinomyces bahiensis*, Parajá da Silva, 1919,[29] found in Brazil in a case of the yellow variety. Some authors identify it with *A. madurae*.

5. *Actinomyces convolutus*, Chalmers and Christopherson,[23] 1916, observed several times in Khartoum. It caused mycetoma with grains of orange color. Only the subcutaneous tissue was involved and fistulae were not present. Removal of the whole growth, with removal of all fungal elements, brought permanent cure.

6. *Actinomyces indicus*, Kanthack, 1893, caused mycetoma with yellow grains. Chalmers and Christopherson,[23] consider this organism identical with *A. madurae*, while Brumpt [17] does not agree.

7. *Actinomyces madurae*, H. Vincent, 1894; synonyms—*Streptothrix madurae*, Vincent, 1894; *Nocardia madurae*, R. Blanchard, 1895, *Nocardia micetomae-argentinae*, Durante, 1911.[17] This organism causes mycetomas with white grains, and has so far been found in Tunis (G. Blanc and H. Bouquet), in Cyprus (Williamson), in Greece (Catsaras), Algiers (H. Gémy and Vincent, Legrain, J. Brault), in Senegal, Somaliland and Abyssinia (Brumpt, Bouffard), in India (Boyce and Surveyor, Cornwall, Brumpt), in Argentine (Sommer Y Greco) and in Cuba (Desvernine and Albertini). The organism from Egypt described by J. Koch and Stutzer [30] is probably *A. madurae* (Chalmers and Christopherson [23]). The bones are not destroyed by this species except the small surfaces in contact with the grains. Potassium iodide does not produce any therapeutic result, and surgical procedures are necessary.

8. *Actinomyces somaliensis*, Brumpt, 1906; synonyms—*Indiella somaliensis*, Brumpt, 1906.[17] This species forms hard reddish yellow grains, and was found in Somaliland (Bouffard), Sudan (Balfour) and Central Africa (Fülleborn). The bones were entirely destroyed.

9. *Actinomyces* sp., Yazbek, 1920,[24] not cultured. This species seems to be closely related to *A. somaliensis*.

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28. Lindenberg, quoted by Yazbek (footnote 24).

29. Da Silva, Pirajá: Contribuição à micologia parasitária do Brasil, Mem. do Inst. de Butantan **1**:187, 1918-1919 (fasciculo 2).

30. Koch, J., and Stutzer: Zur Biologie und Morphologie des Streptothrix madurae, Ztschr. f. Hyg. u. Infektionskrankh. **69**:17, 1911.

10. *Actinomyces* sp., Yazbek, 1920,[24] was found in Brazil in a case of the white variety, with numerous grains. This species is closely related to *A. asteroides*. It is pathogenic for guinea-pigs.

11. *Actinomyces pelletieri*, Laveran, 1906; synonyms—*Micrococcus pelletieri*, Laveran, 1906, *Mycoderma griewanki*, Neveu-Lemaire, 1921.[17] It produces mycetomas with red grains, and was observed in India, Egypt, Senegal (Pelletier, Thiroux, 1912) and Brazil (Genesio Salles). Improvement was noticed under treatment with potassium iodide.

12. *Actinomyces verrucosus*, Miescher, 1916; synonym—*Streptothrix verrucosus* Miescher, 1916; produced white grain mycetoma pedis in Switzerland, observed by Bloch [31] and thoroughly studied by Miescher.[32]

13. *Actinomyces ponceti*, Verdun, 1912.[17] The disease caused by this species resembled more actinomycosis in the old sense of this term, and was called "pseudoactinomycosis" or "mycose à grains jaunes." The organism is closely related to, if not identical with, *A. krausei*.

Babes,[17] 1888, and Mironescu,[17] 1910, observed in Roumania also an actinomycosis with black grains. The species was never identified.

THE MADUROMYCOSES

The etiology of the maduromycoses is rather complicated, for the microfungi found so far belong not only to different genera, but also to different classes. Chalmers and Archibald [1] proposed to subdivide again the maduromycoses, according to the color of the grains. From the clinical standpoint this classification is certainly justified. The grain and its color impresses the clinical observer as the dominating factor. For a study devoted chiefly to the etiology of the disease, this classification appears less suitable, because fungi belonging to the same genus, for example, *Scedosporium* or *Aspergillus*, may cause maduromycosis with grains of different color. Nicolle and Pinoy [9] succeeded even in producing black and white grains, experimentally, by inoculation of the same species (*Sterigmatocystis nidulans*) into the feet of pigeons. Therefore, the fungi of maduromycosis shall be enumerated in this paper, only from the botanical point of view.

It is frequently difficult to identify the fungus parasites of human beings, as they are so lacking in the morphologic characters by which

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31. Bloch, J.: Ueber einen Fall von Mycetoma pedis, verursacht durch eine bis jetzt noch nicht beschriebene Streptothrix Art, Cor.-Bl. f. schweiz. Aerzte **46**:270 (Feb. 26) 1916.

32. Miescher, G.: Ueber einen Fall von Mycetoma pedis nostras, verursacht durch eine neue pathogene Streptothrix, nebst Bemerkungen zur Systematik der Trichomyceten (Streptothrix, Actinomyces), Arch. f. Dermat. u. Syph. **124**:297, 1917. Miescher's organism is not identical with Actinomyces verrucosus, Adler, 1904.

other fungi are determined. Therefore, these molds are identified not only by the cultural characteristics, but also by the pathologic behavior. Many fungi are subject to great variations, and the differentiation between a new species and a mere permanent variation can be made only after prolonged study. Besides, how some fungous parasites live in nature is not known; only the form they assume after passage through the animal or human body is known.

Therefore, in spite of the numerous organisms isolated in maduromycosis, the actual knowledge of the mycology of these fungi is still rather limited. Some of the genera in question are necessarily only provisional, and not well defined. Still more difficult is the differentiation of the species. The descriptions of some species are incomplete, and it is not known whether the differences in color, the pigment production and the formation of granules in cultures are constant features or individual variations due to the dimensions of the culture tubes, composition of the mediums, the water contents, etc. Even the ability to ferment certain sugars may be lost or become acquired.

In the following descriptions are given of all organisms found so far in maduromycosis. In the last part of this paper two new species are added to this long list, and, therefore, organisms closely related to mine are described more in detail than others. For a number of fungi the available data are rather scarce, while others were thoroughly investigated. For these reasons it was not only undesirable but also impossible to give a comprehensive mycologic report on each organism.

All organisms causing maduromycosis belong to the vegetable kingdom, division *Thallophyta*, subdivision *Fungaceae*, Linnaeus, 1737. Since they consist of threadlike hyphae with apical growth, which collectively are termed mycelium and reproduce by spores, they have to be classified as *Eumycetes*, Schroeter, 1892. This paper concerns only two classes of the *Eumycetes:*

A. *Fungi imperfecti*, Fuckel, 1869.

B. *Ascomycetes*, Berkeley.

A. FUNGI IMPERFECTI

Fungi imperfecti, or *Hyphomycetes*, are fungi with a filamentous thallus which seem to reproduce exclusively by conidia. The life history of these molds is imperfectly known, and hence, it happens, when it has been established, the type is removed from the fungi imperfecti, and properly classified with some other group.[33]

33. Pollacci and Nannizzi Nannizzi (Siena) cultures certain hyphomycetes: (Trichophyton, Microsporon, Achorion etc.) on special mediums, as bird feathers, skin, hair and bones. He claims to obtain ascospore and perithecia formation with this technic after from three to twelve months' growth in the

It has been decided that the nomenclature of the fungi imperfecti should commence with Fries' (1821-1829) Systema Mycologicum. This classification is based on factors which are inconstant as, for example, the color of the hyphae and conidia. To obviate this difficulty Vuillemin [34] concentrated his attention on the "spore" and created in 1907 a new classification, which has as its basis Saccardos' "Sylloge Fungorum

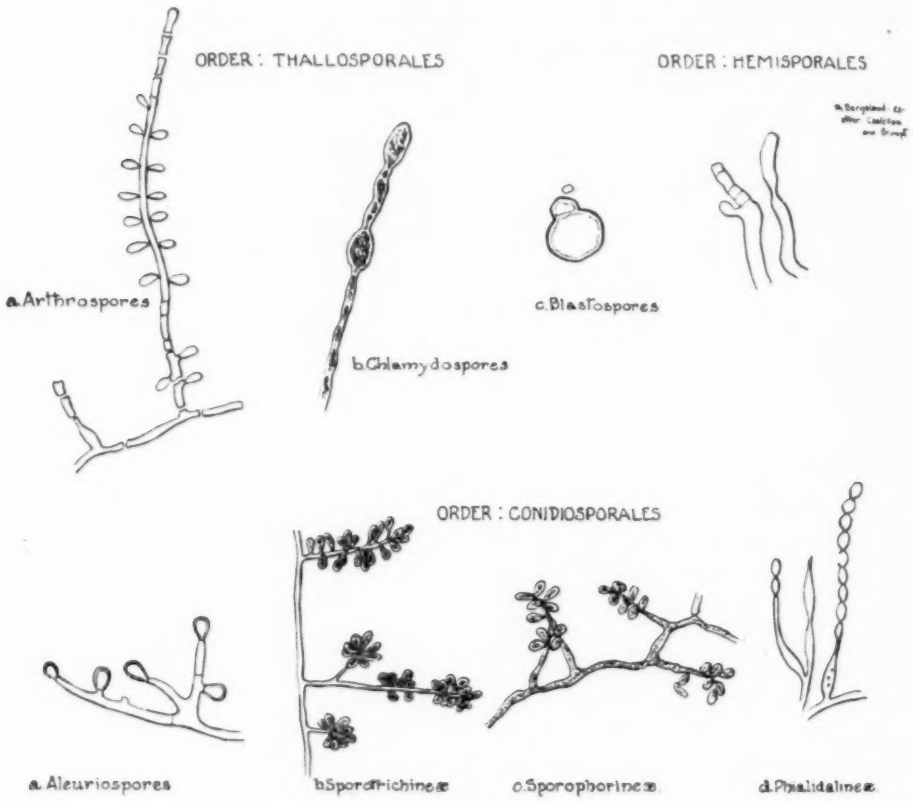

Fig. 1—Class Fungi imperfecti.

omnium hucusque cognitorum," which details some 60,000 species. Vuillemin's system is now largely used in medical mycology, and therefore it is followed also in this paper.

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dark. Pollacci, G.: Nuove osservazioni sul ciclo di sviluppo dei genera Trichophyton, Achorion, Microsporon e loro rapporti con forme saprofitiche, Gior. ital. di dermat. e. sifil. **66**:572, 1925. Nannizzi, A.: Ricerche sui rapporti morfologici e biologici tra Gymnoascee e Dermatomiceti, Ann. mycol. **24**:85. 1926.

34. Vuillemin, P.: Les bases actuelles de la systematique en mycologie, Prog. rei botan. **2**:1, 1907; Les Champignons: Essai de Classification, Encyclopédie Scientifique, Paris, Gaston Doin et Cie, 1912.

This paper is concerned only with two orders of *Hyphomycetes; Thallosporales* and *Conidiosporales.*

I. THALLOSPORALES

The thallosporales are fungi imperfecti with mycelium composed of hyphae more than 1 micron in diameter, and either short and resembling the conidia or longer, and distinct therefrom. Reproduction takes place by means of thallospores. Only the suborder *Arthrosporineae* is of interest here.

In this group the sporiform elements, termed arthrospores, are developed by disarticulation of hyphal elements, at first with square cut ends, which subsequently become rounded off. Chlamydospores are large arthrospores, which without becoming isolated undergo a kind of encystment, with the formation of a thick, and sometimes colored, wall.

(*a*) Genus *Madurella,* Brumpt, 1905, Pinoy amendment, 1912; definition: *Arthrosporineae* with septate sterile hyphae, reproducing by fragmentation of the thallus and secreting black pigment. The spores are produced secondarily by binary division of the articles. They are found in black maduromycosis, and grow well at 37 C.

Madurella mycetomi, Laveran, 1902; synonym—*Streptothrix mycetomi,* Laveran, 1902; *Madurella mycetomi,* Brumpt, 1905.

"Grayish-white mycelium, becoming yellow when old, blackening sugar culture mediums. Spores of variable dimensions, from 2 to 5 micra. Black sterile sclerotia of one-half to one millimeter in diameter, formed in the interior of the culture medium. In its parasitic stage, this fungus can invade in man, the skin, bones, muscles, and conjunctival tissue, causing mycetoma with black grains. The grains are small, hard, round, more or less verrucous, of a morphology, resembling the sclerotia [35] formed in cultures" (Pinoy).[36] This organism has been studied by J. Brault,[37] A. K. Yazbek [24] and F. Noc and Jouenne.[38]

Brault found it in a mycetoma of eight years' standing, in a native Arabian. A cystlike tumor of walnut size on the foot discharged in a

35. These "sclerotia," of course, do not conform with the definition of Anton de Bary (Morphologie und Physiologie der Pilze, Flechten und Myxomyceten, ed. 1, Leipzig, Wilhelm Engelmann, 1866). They consist simply of a network of densely interlaced hyphae, spores and chlamydospores formed under unfavorable conditions.

36. The characteristic features important for the differential diagnosis of the species of this genus are tabulated on another page. Therefore here only those are enumerated which are not contained in table 1.

37. Brault, J.: Mycétome à grains noirs observé en Algérie; isolement du madurella mysetomi, Ann. de dermat. et syph., series 5, **3**:333-343, 1912; note sur les cultures de madurella mycetomi, Bull. Soc. de path. exot. **6**:407, 1913.

38. Noc, F., and Jouenne: Les mycétomes à grains noirs du Senégal, Ann. de l'Inst. Pasteur **36**:365 (May) 1922.

sanguinopurulent fluid, hard, black, irregular granules from the size of a pinhead to that of a large grain of corn. These large granules seemed to be conglomerate smaller ones. Cultures were obtained from the grains and from pus.

In hanging drop cultures, the mycelial filaments divide themselves into particles from 5 to 10 microns in length, and by strangulation into a moniliform string of spores of the diameter of the hyphae.

Yazbek, in 1919, isolated an organism from a black grain mycetoma of ten years' duration in Brazil, which he believes to be *M. mycetomi.* In Sabouraud's broth, numerous small colonies were formed, adherent to the walls of the culture tubes, producing abundant pigment. Milk was not coagulated. A grayish white membrane, which was black underneath, was formed on top.

Noc and Jouenne cultured the same organism in two out of three cases of black grain mycetoma in natives in Senegal. Two types of colonies were observed, according to the humidity of the medium: either round, brown, moist and scarlike, or duveteuse, or brown with white efflorescences. Black and also sometimes white granules were noted on the surface of old cultures. According to these authors, the black grain variety is observed frequently in Africa and considered as curable without amputation, provided the lesions are not too old and secondarily infected.

Madurella bovoi, Brumpt, 1910,[17] found in 1906 by Paolo Bovo in Genua, in blackish nodules of the size of a millet grain or a pea, located about fifteen in number, on the right foot of a man, aged 74. Clinically, the lesion very much resembled a melanosarcoma, but on microscopic examination Bovo observed a network of mycelial filaments and sporiform elements which could be seen easily in sections as well as in pieces bleached with potassium hydroxide. Bovo and Pepere considered this organism as probably being *Aspergillus fumigatus* or *niger,* but Brumpt believes that in the absence of culture it is safe to assign this organism to the *Madurella* group.

Madurella oswaldoi, Parreiras Horta, 1919. "Luxuriant mycelium, which changes its color during growth from greenish-grey to purplish-grey. When old the cultures assume a purplish color. The cultures show distinct zones: a central knob, a deep depression, and a zone of deep fissures. The mycelium radiates from the center, its color on Sabouraud's mediums varies from white to dirty yellow and purple. It darkens the liquid and solid sugar mediums, which is very characteristic for the parasite. The radiating culture resembles *Sporotrichum,* but is more luxurious on the walls of the culture tubes. It grows easily in hanging drop cultures. These radiating cultures are of a dirty yellow color. No sclerotia in cultures."

This fungus was isolated by Oswaldo Cruz from a typical mycetoma of the foot in Acre (Brazil) and studied by Parreiras Horta [39] in Rio de Janeiro.

Madurella ramiroi, Piraja da Silva, 1919; hyphae with sudanophil granules. The spores are irregular, in moniliform arrangement with a maximum diameter of 2.71 microns. It grows well on potato and other mediums at room temperature. Cultures on Sabouraud's glucose and maltose agar are deep brown, cerebriform. They develop relatively rapid and with abundant pigment formation; *Sclerotia* are rare.

This organism was isolated and studied by Piraja da Silva [29] from a typical maduromycosis in a man, aged 23, from Sta Luzia (Brazil).

Madurella tabarkae, Blanc and Brun, 1919.[40] This forms a luxurious white growth on Sabouraud's agar, which radiates from the center, darkens slowly and becomes wrinkled like certain *Trichophyton* cultures. After one month the center is coppered, covered with yellow droplets; the periphery is greenish yellow. These cultural characteristics are more pronounced on Sabouraud's maltose than glucose agar. The optimal temperature is 22 C., but subcultures may grow also at 37 C. Fermentation of sugars does not occur. In gelatin there are luxurious surface growth, arborization and sclerotia in the depth, but not liquefaction.

This organism was isolated from a black grain mycetoma in Tabarka (Tunis).

Madurella tozeuri, Nicolle and Pinoy, 1908; synonym—*Oospora tozeuri,* Nicolle and Pinoy, 1908.[41] "Mycelium white, becoming yellowish with age and darkening the mediums in sugar cultures. Spores generally small, 2 to 5 microns in diameter. Sclerotes are rare and only on the surface of the culture medium. Occasionally it gives rise to a mycetoma in man in which it forms black, amorphous grains, which are often made up of a mycelial ring, enclosing degenerate cellular elements which are impregnated with the pigment of the fungus, and also of small diffuse masses, formed solely by the filaments of the fungus, which have a yellow membrane. Inoculation into pigeons positive" (Pinoy).

The grains of this species, which were not larger than a pinhead, were formed in a particular way: The mycelial filaments usually followed the blood vessels and their branches, and formed rings around the capillaries. The fungus secreted a substance which blackened the surrounding elements. The leukocytes and giant cells darkened first and were transformed into granular, and later hyaline, amorphous material.

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39. Horta, Parreiras: Um novo mycetoma de grãos negros, produzido pela "Madurella Oswaldoi n. sp." A Pathologia Geral., no. 1-4, 1919, quoted by Yazbek (footnote 24).

40. Blanc, G., and Brun, G.: Nouveau cas de mycétome à grains noirs en Tunisie, Bull. Soc. de path. exot. **12**:741, 1919.

41. Nicolle, C., and Pinoy, E.: Un cas de mycétome à grains noirs, Bull. Soc. path. exot. **1**:95, 1908.

The pigment production of molds and its mechanism were studied by Gessard [42] and Bertrand.[43] The latter author found that the pigment of *Russula quelitii*, Francis, was due to tyrosinase. Nicolle and Blanc [44] showed that the pigment of *M. tozeuri* is also due to the action on tyrosine in the presence of certain carbohydrates, either in the organism or in the culture mediums. The addition of glucose, maltose, levulose, dextrin, lactose, mannite, xylose or soluble starch produces abundant pigment. On addition of saccharose and galactose, the color of the agar becomes only brown, while the addition of raffinose, erythrite or dulcite results in poor growth and no pigment formation.

Nicolle and Pinoy isolated this species in 1908 from a black grain mycetoma of 18 years' standing at the oasis of Tozeur (South Tunis) and called it *Oospora tozeuri*. When in 1911 Brault [45] cultured *Madurella mycetomi*, Pinoy made a comparative study of both organisms, and since he found the same modus of reproduction, he abandoned the name previously proposed, and changed it to *Madurella tozeuri*.

Unidentified Organisms.—Here a few organisms grown from maduromycosis with black grains may be enumerated, which probably belong to the genus *Madurella*, but which were not cultured, or of which the studies and descriptions are too incomplete to permit identification.

The first successful culture ever made was obtained by Wright [11] in Boston, in 1898. The patient was an Italian woman who had been in this country for six years. Unfortunately the organism died out before an identification was made. From a careful study of Wright's report, it is considered most probable that he was dealing with an organism of the *Madurella* group although pigment formation is mentioned only in cultures on potato or potato infusion, and not also on glucose agar.

K. W. Mackenzie,[46] in 1911, cultured from the granules of mycetoma of a native Indian, a hyphomycete which showed marked pigment formation. G. C. Chatterje [47] in Calcutta, the same year, found another fungus which formed uniformly dark colonies on agar, and did not liquify gelatin (*Glenospora?*).

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42. Gessard: Compt. rend. Acad. d. sc. 1903 and 1904, quoted by Noc and Jouenne (footnote 38).

43. Bertrand, G.: Recherches sur la mélanogénèse: Action de la Tyrosinase sur la Tyrosine, Ann. de l'Inst. Pasteur **22**:381 (May) 1908.

44. Nicolle, C., and Blanc, G.: Arch. de l'Inst. Pasteur de l'Afrique du Nord **11**:183 (Dec.) 1920.

45. Pinoy, an additional note to Brault's first article (footnote 37).

46. Mackenzie, K. W.: A Case of Madura Foot, Indian M. Gaz. **46**:378 (Oct.) 1911.

47. Chatterjee, G. C.: On the Biology of Black Mycetoma, Indian M. Gaz. **46**:376 (Oct.) 1911; On the Cultivation of Black Variety of Mycetoma, Centralbl. f. Bakteriol. **61**:358 (Dec. 16) 1911.

T. V. Verbély, in 1908, obtained an organism which he could not identify. Belák [48] resumed these studies again in 1913 and 1916. On Sabouraud's mediums or glycerinated potato, a moist, folded, dark reddish or black-brown membrane was formed. Sugars favored the pigment formation; gelatin and Loeffler mediums were liquified. Also, Solari [49] in Argentine and Busacchi [50] in Cremona isolated hyphomycetes which they did not identify.

Fungi possibly belonging also to the genus *Madurella* were obtained but not cultured by Vandyke Carter,[2] Bassini [5] in 1888 in Padua, Koebner [2] in 1891 in Italy, Cunningham, Lewis, Boyce and Surveyor [2] in 1893, Oppenheim [51] in 1904 in India, Schmincke [52] in 1911 in Bad Kissingen, Scheult [2] in the West Indies, Marchand [53] in 1911 in Egypt, and others.

(*b*) Genus *indiella*, Brumpt, 1906; definition: *Arthrosporineae* which were not yet cultivated, with white thallus living parasitically in different animal tissue (bone, muscle, connective tissue) with filaments varying in dimension from 1 to 5 and 10 microns in their vegetable life. These filaments are septate and ramified, and never secrete any pigment. Masses of myceiial threads form sclerotia-like grains by which the different species of this genus may be recognized. The grains contain more or less numerous chlamydospores which usually are terminal.

Indiella mansoni, Brumpt, 1906. Mycelial threads are septated, white, thin, from 1 to 2 microns when young, and larger (from 3 to 5) and of irregular shape when old. There are numerous spherical chlamydospores, generally terminal, from 5 to 12 microns in diameter. The grains (sclerotia) are small, from 0.2 to 0.25 mm. in diameter, white, lenticular or reniform and very hard, and they do not soften on being kept in caustic potash. This organism has been observed only twice so far: once the patient was a native of India, and the other time a Chinaman (reported by Jouveau-Dubreuil [17]).

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48. Belák, A.: Studien an 2 von v. Verbély aus Madurafüssen gezüchteten Stämmen, Centralbl. f. Bakteriol. **83**:528 (Oct. 31) 1919.

49. Solari, E. F.: Mycetoma in Argentina, Semana méd. **24**:573 (Nov. 22) 1917. Reference in J. A. M. A. **70**:967 (March 30) 1918.

50. Busacchi: Un caso di piedre di Madura in contadino italiano, Atti d. Soc. ital. di chir. Roma, 1912, quoted by Pepere (footnote 60, second reference).

51. Oppenheim, M.: Die pathologische Anatomie des Madurafusses, Arch. f. Dermat. u. Syph. **71**:209, 1904.

52. Schmincke (Würzburg): Demonstration einer unter dem Bilde des Madurafusses verlaufenen Fusserkrankung. Bericht über die Verhandlungen der XIV. Tagung der deutschen Pathologischen Gesellschaft in Erlangen von 4 to 6 April, 1910, Centralbl. f. allg. Path. u. path. Anat. **21**:451 (May 31) 1910.

53. Marchand: Demonstration eines Falles von Madurafuss, München. med. Wchnschr. **58**:545 (March 7) 1911.

Indiella reynieri, Brumpt, 1906. White thallus is present. Most of the mycelial filaments are very thin, from 1 to 1.5 microns, and septated. Some, those at the periphery, are of irregular shape, much broader (from 4 to 5 microns) and moniliform. Nearly every mycelial thread has, at the peripheral extremity, a terminal chlamydospore (from 5 to 20 microns), often septate in two or three cells. The grains or *Sclerotia* are small, less than 1 mm., in diameter, coiled up like the excrementa of an earth-worm.

This organism was observed by Reynier and Brumpt [54] in France, in a patient who never had left his country, and again 1912 by Catsaras [55] in Greece.

Indiella brumpti, Piraja da Silva, 1922. Species mucedinea arthrosporinea, hyphis, albis sterilibus praedita, prius tenuibus, vix septatis et circiter 2 micra crassis, dein firmioribus, usque 7 micra crassis, septatis, septis valde inaequaliter distantibus, a 3 usque ad 15 micra, granuli albi, contextu molli et densis mycelii hyphis efformati; forma generatim globosa, 0.6-0.8 mm. diam., chlamydosporiis terminalibus saepius sphaericis interdum ex constrictione 1—septis, ortis aliquando ex hyphis marginalibus ex peripheria radiantibus, plerumque vix 9 micra diam. interdum majoribus, 12 micra vel etiam 15 micra.

Rarius, aliquot hyphae septatae et constrictae continent 3-4 chlamydosporia intercalaria.

This fungus caused a maduromycosis with white grains in the foot of a colored woman in Bahia, Brazil.[56]

2. CONIDIOSPORALES

The conidiosporales are fungi imperfecti with the mycelium composed of abundant hyphae, more than 1 micron in diameter, septate and branched with or without true conidiophores, and with reproduction by means of true conidia. Only two of the five suborders are of interest: *Aleuriosporineae* and *Sporophorineae.*

(*a*) *Aleuriosporineae.*—The aleuriosporineae are conidiosporales in which reproduction takes place by aleuriospores. An aleuriospore is not a true conidium. It may be terminal, lateral and intercalary, but in each case it is not originally distinct from the thallus, and is only set free by the death of the filament to which it is attached. It has the morphologic significance of a chlamydospore.

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54. Brumpt (footnotes 14 and 17).

55. Catsaras, J.: Zwei Fälle von Madurafuss (Mycetoma pedis) in Griechenland, Arch. f. Schiffs-u. Tropen-Hyg. **16**:461 (July 1) 1912.

56. Da Silva, Piraja: Sobre uma nova maduromycose de grãos brancos, produzida pelo Indiella brumpti; n. sp., Thesis, Bahia, 1922. (Definition through courtesy of Professor Brumpt, Paris, letter of July 10, 1926.)

Genus *Glenospora,* Berkeley and Curtis, 1876; definition: *Alleurio-sporineae* without conidiophores, with simple or appendiculate spores, and pale and dark hyphae. The aleuriospores become dark, and are situated acropleurogenously on light or dark hyphae, but are small, being generally 6 by 4 microns in diameter, and rarely 11 by 5 microns (Castellani).[57]

Glenospora khartoumensis, Chalmers and Archibald, 1916, hyphae septate, branched, varying in diameter from 2.8 to 1.4 microns, and increasing in very old cultures to 4.2 microns. At first the hyphae are pale, but when older they become dark, being of a greenish black tinge. They are thick walled, clear or dark colored. Chlamydospores are present and are especially marked in the black masses on the surface of the potato infusions and nutrient gelatin. Aleuriospores are small, 5 microns or less in diameter, and are found acropleurogenously situated in the surface growth of old potato infusion.

The spores are truncated by the septums which cut them off from the hyphae, and thus they are oval.

On maltose agar the typical growth is black, and it has a central elevation surrounded by a depression, which separates it from a grooved raised plateau with a slight fringe. The black growth becomes covered with a grayish duvet, while the medium increases its own naturally dark tint. The optimal temperature is 30 C. The gelatin is not liquified and the milk not clotted.

The organism is not pathogenic for animals.

This organism was isolated from the foot of a native boy in Khartoum, Anglo-Egyptian Sudan.[1] Enucleation resulted in permanent cure.

Glenospora khartoumensis, Chalmers and Archibald, 1916. Hyphae threads branch dichotomously and have a stippled appearance. The fungus closely resembles *G. khartoumensis,* but differs from it in gross cultural characteristics. The optimal temperature is 35 C. Growth is abundant in Raulin's fluid for molds. It was found by Semon [58] in an Indian soldier serving in France. Potassium iodide was used without result; operation was refused.

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57. The genus Glenospora of Berkeley and Curtis was originally published with a very few words: "Flocci fastigiati parce articulati, hic illic sporangia globosa sessilia vel pedicellata ferentibus" (Berkeley and Curtis: Grevillea **4**:161 [June] 1876). Saccardo's description is also brief: "Hyphae biogenae, in crustam atram intextae, variae ramosae, septatae. Conidia ramulis diu haerentia, globosa, majuscula, levia" (Saccardo [footnote 7, p. 298-299]). Although Saccardo mentions the genus in three subsequent volumes in order to note additional species, he does not give any additional diagnosis. Information through courtesy of Dr. John H. Barnhart, New York Botanical Garden.)

58. Semon, H. C.: Mycetoma Pedis, Brit. J. Dermat. **27**:299 (Aug.) 1915.

(*b*) *Sporophorineae.*—Sporophorineae are conidiosporales reproducing by true conidia borne on conidiophores.

Genus *Scedosporium,* Saccardo, 1911; definition: Sporophorineae with branched decumbent conidiophores.

Scedosporium apiospermum, Saccardo, 1911; synonyms—*Monosporium apiospermum,* Saccardo, *Aleurisma apiospermum* (Saccardo), Maire, 1921. "Caespitulis albis, dein leviter fuscis, byssinis, densiusculis, 3-5 mm. latis (in culturis): hyphis mycelialibus repentibus, filiformibus, intricatis; Conidiophoris decumbentibus (non erectis!) vage parcissimeque ramosis, parce septatis, 2.5-3 micra cr. hyalinis, hinc inde guttulatis, ramis ascendentibus, sursum paullo tenuatis, monosporis; conidiis continuis piriformibus, oblongis, interdum obovatis ima basi acutatis truncatisque, 14^{r} 5.6, interdum 11^{r} 5.7, rarius subrotundis, intus varie guttulatis v. granulosis, extus levibus, longioribus, saepe infra medium leviter coarctatis, initio hyalinis demum dilutissime sordide roseo-flavidis.

Hab. Cultum in tubere Solani ex foculis granulomatosis cutaneis nec non subcutaneis mollibus sed epidermide omnino integra tectis pedis humani, Jan., 1911, in nosocomio dermopathico universitatis Sassari Sardiniae (prof. doc. Fr. Radaeli)—A typo generis Bonord. et Sacc. recedit habitu decumbente, non verticillioideo, in quo (dempta fructificatione secundaria) ad *Monosporium* (Eidamia) *acremonoides* Harz accedit. Cl. Prof. Radaeli speciem cum observationibus pathologicis descripsit in Giornale Italiano delle malattie veneree e della pelle, anno 1911, fasc. 1." [59]

This fungus has been found as the cause of white grain maduromycosis in Italy by Tarrozzi,[17] 1909, and Radaeli,[17] 1911; in Brazil by Piedro S. de Magelhães,[24] 1917, and Democrito Linhares,[24] 1917, and in Algiers by Montpellier and Gouillon,[14] 1921.

Radaeli [60] was able to produce with this organism in rabbits a purulent arthritis, and an eye infection; Bolognesi [60] also in 1923 produced a granulomatous process in the muscles of white rats.

Scedosporium sclerotiale (*seu nigricans*), Pepere, 1914; synonym—*Monosporium sclerotiale,* Pepere, 1914. This organism differs from *S. apiospermum* chiefly by the black grains which it produces in man. It was found by Pepere [61] in a patient from Iglesias (Cagliari) in Sardinia;

59. Saccardo (footnote 7, **22**:1287). (Quotation through courtesy of Dr. John H. Barnhart, New York Botanical Garden.)

60. Quoted in Pollacci, G., and Nannizzi, A.: I miceti patogeni, Siena, Stab. Arti Grafiche S. Bernardino, 1923, part 2.

61. Pepere, A.: Micetoma a grani neri del piede, Sperimentale: Arch. di biol. (suppl.) **67**:213, 1913; Sul fungo parasita di un micetoma a grani neri del piede (Carter), nostrana (Monosporium apiospermium, Sacc. [M. sclerotiale]), Sperimentale: Arch. di biol. **68**:531, 1914.

the condition was of eighteen years' duration. Inoculation into the anterior chamber of the eye of rabbits was successful. Pollacci [60] considers this fungus identical with *S. apiospermum.*

B. ASCOMYCETES

The fungi of this order are characterized by a mycelium of septate hyphae and uninucleate or plurinucleate cells. The reproduction of the majority of species is through endogeneous spores known as ascospores which are formed in definite numbers inside of a sporangium termed "ascus" (*ἄσκος*, wine-skin, water-bottle). These asci are found either

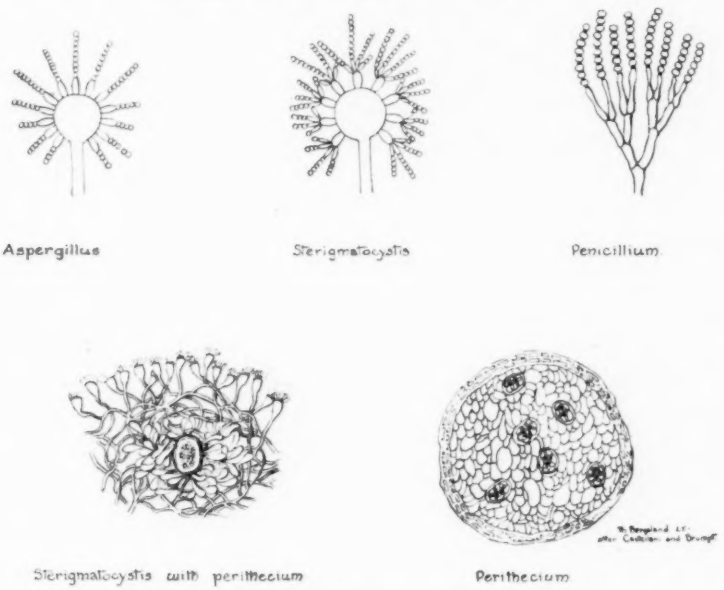

Fig. 2.—Class Ascomycetes.

isolated or enclosed in a fruit body, as for example a perithecium. A perithecium is a closed fruit body sometimes produced under ground where it remains subterranean. While these fungi live a parasitic life, as a rule no asci are formed. As accessory fruit forms conidiospores are found comparable to those in the preceding order *Fungi imperfecti.*

Only the genera *Allescheria, Aspergillus, Sterigmatocystis* and *Penicillium* need be considered here.

Genus *Allescheria,* Saccardo. Perithecia globulosa, minuta, tenuimembranacea. Asci globosi. Sporidia ovata, utrimque acuta. Conidia catenulata, in sporophoris acrogena, dein ob ramulum laterem (dein apice conidiophorum) compressa.

Allescheria boydii, Shear,[62] 1921.

62. Shear, C. L.: Life History of an Undescribed Ascomycete Isolated from a Granular Mycetoma of Man, Mycologia **14**:239 (Sept.) 1922.

I. Perithecia — numerous, crowded, covering the surface of the medium, usually erumpent or superficial, globose, thin, membranous, dark brown astomate and from 100 to 200 microns in diameter; asci—globose or subglobose, thin-walled, evanescent at maturity, and from 10 to 20 microns in diameter; paraphyses—none; ascopores—8, globose to subglobose or somewhat ovoid, continuous, smooth and pale yellowish brown when mature, the globose form being about 7 microns in diameter, the others mostly from 5.5 to 7 by 4 to 4.5 microns.

II. Pycnidia—unknown or wanting.

III *a*. Byssoid conidial form, *Cephalosporium boydii*—thin, floccose, white at first, soon gray, margin radiate-fimbriate, later changing to pale greenish ochraceous as sporulation begins, fertile hyphae much branched, spreading, conidiophores lateral or terminal mostly short; conidia adhering in small or large subglobose masses, continuous, subglobose to oblong elliptical, variable in size and shape, hyaline at first becoming pale, yellowish brown when old, smooth, from 8 to 15 by 4 to 7.5 microns, mostly from 10 to 12 by 5 to 6 microns.

III *b*. *Coremia* (*Dendrostilbella boydii*)—with dark brown synema, variable in height and thickness, from 200 to 300 microns or more high, head subglobose; sporophores alternately branching, ultimate branches once or twice the length of the conidia; conidia practically the same size, shape and color as in the byssoid condition and adhering in a globular mass after abstriction.

This organism was isolated by Boyd and Crutchfield [25] in Galveston, Texas, from a case of maduromycosis with pearly white grains, about 2 mm. in diameter and very irregular in shape. Roentgen-ray examination showed periostitis of the tarsal bones. Roentgen-ray treatment was of some benefit but failed to result in cure.

Genus *Aspergillus*, Micheli, 1725. There is a sterile branched mycelium, producing first conidiophores and later perithecia, in which the asci are formed. The asci are rounded or piriform and include four or eight lenticular ascospores. The conidiophores are elongated, unseptate and unicellular, and terminate in a globular swelling, the top of which is covered with a large number of closely set stalks (sterigmata or phialides) of variable length and shape, on which spheric or ellipsoidal unicellular conidiospores in long chains develop. The perithecia are fragile spheres with thin walls.

Aspergillus bouffardi, Brumpt, 1906.[14] The mycelium is whitish in some zones, brown in others. The conidiophores are erect, simple, continuous, white, terminating in a claviform structure of 4 by 6 microns in diameter bearing short chains of roundish conidia. The conidia are

from 1.3 to 1 micron in diameter, round and white, with a smooth surface. Terminal and intercalary chlamydospores are present. The grain cannot be considered as a sclerote in the strict sense, because it has conidiophores in its interior. Attempts at cultivation and animal inoculation did not succeed.

This organism was found by Bouffard in a white grain maduromycosis in Djibouti, and it was thoroughly studied by Brumpt.

Another unidentified *Aspergillus* was observed by Balfour and Archibald [2] in the Anglo-Egptian Sudan, in a case of maduromycosis with hard, spherical and deep red grains.

Genus *Sterigmatocystis,* Cramer, 1869. This genus differs from the genus *Aspergillus* only by its branched sterigmata (phialides). The primary sterigmata are surmounted by similar elements—secondary sterigmata—which support a chain of roundish conidia.

Sterigmocystis (*Diplostephanus*) *nidulans,* Eidam, 1883, variety Nicollei, 1906. Young mycelium—colorless; conidiophores—erect, continuous or with rare septums, turning bluish green, sometimes brown; 0.8 mm. in length and 4 microns in breadth, terminating in a conical swelling (12 by 10 microns) covered with cylindric sterigmata (8 by 3 microns) bearing two, rarely four secondary sterigmata (4 by 2.5 microns), which give rise to a chain of globular, smooth or finely punctate conidia of 2 or 3 microns in diameter. Chlamydospores—terminal, brown, spheric (8 by 16 microns).

The perithecia are black brown, of from 50 to 300 microns in diameter, embedded in a nest of hyphae. The optimal temperature is from 36 to 38 C. No or poor growth is produced on Raulin's or Cohn's fluid. It is not pathogenic for rabbits (Pinoy).

On agar, with hay decoction, this organism forms a yellowish duvet on top of a red brown membrane. The pigment diffuses into the culture medium.

This fungus was isolated from a maduromycosis of one year's duration in a native woman in Tunis and it was investigated thoroughly by Nicolle and Pinoy.[63] The grains varied from microscopic size to the size of a pea. They were dirty white, yellowish white and brown. The older the grain the darker is the color—the center may even be black. Since in the only case observed the bones were rarefied and potassium iodide in massive doses did not improve the condition, the foot had to be amputated.

Genus *Penicillium,* Link, 1809. "Abundant mycelium with conidia and perithecia inside of which after a period of rest asci and spores are formed. Asci ovoid or piriform, including eight elongated spores with acuminate extremities. Conidial hyphae more or less richly branched,

63. Nicolle and Pinoy (footnotes 2, 17 and 44).

their upper third with verticillate branches terminated by a long chain of globular conidia" (Gedoelst).

Penicillium mycetogenum, Mantelli and Negri, 1915.[64] Parasita in foculis granulomatosis pedis humani (Mycetoma pedis melanoticum). Hyphae in granulis (pseudosclerotiis) subsphaericis vel lobatis, facie carboniosa (mm. 0.2-0.5) solitariis vel 2-3 aggregatis, congestae, septatae; externae granuli maiores (2.2 micra), breviores, contortae, apice clavatae, coemento nigro in crustam connexae: internae (1.5 micra) hyalinae, cellulis conidicis maioribus, alteris terminalibus, ovalibus vel pyriformibus (3-4 micra), alteris maximis (6-10.5 micra), intercalaribus (capsulae Carteri) praeditae. E granulis (in tubo cum agaro glicerinato vel substrato Sabouraud) coloniae oriuntur circulares, elevatae, umbilicatae, griseolae, velutinae, facie profunda rotundata segmentum sphaericum efficientes (1.5-3 micra) gemmuliferae (gemmulae 4.5 micra longae), ocreae griseae, in substratum delabentes aterrimae. Coloniae penicilliferae inter 20° et 25° cent. floride, inter 3° et 37° usque lente sed normaliter vegetantes hyphae steriles repentes hyalinae, septatae; in solano, pane, dauco saccharato et glicerinato, citro, aurantio cultae, floccoso pannosae modice rugosae vel undulatae, substratum omnino tegentes, primum candidae, deinde, fructificationis causa, aeruginoso-virides, denique murinae; reverso cremeo, senectute hyphis nigrescentibus marginato: odore nullo, vel levissime fungino: in gelatina rotundatae, planae, substratum non liquefacientes, interdum ochraceo laevi colorantes: in agaro lacmi opealcalinae; in pyro et malo aracneosae: in decoctione phaseolorum pura vel saccharata et glicerinata, dimorphae: prius profunde immersae et quasi velum basilare, hyphis hyalinis septatis (1-5.2 micra) passim, e cellulis magnis, membrana fortiori (8-12 micra) ovalibus interruptis, constitutum: serius supernatantes, hyphis conidiophoris sterilibusque normalibus, crustam, superficiem culturae omnino tegentem, efformantes. Conidiophora crebra, nunquam fasciculata (coremium), coespitibus hypharum sterilium ascendentium commixta: septata, superne bi-trifurcata, dein iterum verticillata umbellula contracta, ultra bifurcationem 50-60 micra longa; verticilli ramuli (pseudobasidia) 7.5-9.2 micra metientes, ramusculos (pseudosterigmata) sphaerico-depressos (diam. 3.7 micra) gerentes; conidia globosa (2.2-3.7 micra) laevia, hyalina, aeruginoso-viridiuscula, nunquam longe catenulata.

This fungus was isolated from a black grain maduromycosis in a resident of Costa Vescovado (Italy). The condition was of nine years' duration. Amputation was necessary. The organism, injected intravenously, killed pigeons after variable times. Retrocultures with the blood of the animals were positive.

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64. Mantelli, C., and Negri, G.: Ricerche sperimentali sull 'agente eziologico di un micetoma a grani neri (Penicillium mycetogenum n. f.) Gior. d. r. Accad. di med. di Torino, series 4, **21**:161 (May 7) 1915.

MADUROMYCOSIS IN THE UNITED STATES

So far twenty-one cases of mycetoma have been reported in the United States. On critical study eighteen of them were found to be actinomycoses and only three maduromycoses. These three cases were reported by Wright [11] in Boston, 1898, by Boyd and Crutchfield [25] in Galveston, Texas, 1921, and by myself [65] in collaboration with Drs. Miskdjian and Thatcher in Cleveland, 1925. Boyd and Crutchfield's case was of the white variety and, as mentioned before, was caused by *Allescheria boydii*. The two other cases were of the black variety. Wright's organism was never identified.

There exist, as far as is known, three unpublished cases of maduromycosis in this country. One of the white variety is under the observation of Dr. Crutchfield in Galveston, Texas. The causative organism is not yet identified.

One case with black grains is under the care of Dr. K. L. Puestow of the State of Wisconsin General Hospital in Madison. The patient is a girl, aged 19, a student. The lesions are located on the face and right arm. Dr. Puestow isolated the organism from the black grains and Dr. Charles Thom identified it as *Aspergillus (Sterigmatocystis) nidulans*. On examining Dr Puestow's specimens, I found in potassium hydroxide preparations hyaline, rather regular, septate hyphae, with aspergillus-like heads.

Another case of the black variety is in the Minneapolis General Hospital, which brings the total number of cases of maduromycosis in this country up to six. The causative organism was isolated from the black grains and sent to me for identification. The clinical and pathologic observations will be published in detail by Drs. H. L. Thompson and K. Ikeda.

The following report deals with the mycologic description of two of the four fungi isolated in black grain maduromycosis in the United States: the organism found by myself and that found by Drs. Thompson and Ikeda.

REPORT OF CASES

Author's Case.—A Mexican, aged 26, born in Texas, had noticed five years before examination a limited swelling in the middle of the plantar surface of the left foot. A few months before admission this swelling began to spread and involved also the dorsum of the foot. On the plantar surface a number of flat pustular lesions developed which on breaking open discharged a black grain, along with a few drops of pus. These pustules rapidly closed and healed again, while new lesions appeared. There was not any involvement of the bone or muscular tissue.

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65. Gammel, J.; Miskdjian, H., and Thatcher, H. S.: Madura Foot (Mycetoma): The Black Grain Variety in a Native American, Arch. Dermat. & Syph. **13**:66 (Jan.) 1926.

Iodides, arsphenamine and roentgen-ray treatment, as well as local surgical measures, were tried without benefit. Amputation was refused on account of the mild subjective symptoms, and the patient was discharged unimproved after seven months in the Cleveland City Hospital.

Grains.—The characteristic granules were always found under the skin embedded in a few drops of oily, semipurulent, blood-streaked fluid. Young granules in pustules just forming were soft, pliable and smoke gray. Older granules in mature pustules were deep black. When the pustule was not opened and was undisturbed, it dried out and formed a small crust with the black granule in the center, and finally the crust and granule fell out spontaneously.

Fig. 3.—Maduromycosis caused by Madurella americana. Plantar view showing swelling, unruptured pustules and closed sinuses.

These granules had a diameter of approximately 1 mm., and often in larger lesions ten or twenty were clotted together, forming a conglomerate mass.

Placing these grains in concentrated nitric acid caused oxydation (air-bubbles), and they turned red. Boiling in strong sulphuric acid dissolved them and the acid became dirty brown. Ten per cent sodium hypochlorite did not bleach them in twenty-four hours. When they were crushed between two slides, only an amorphous brown material was observed under the microscope.

The pigment in the grains was very resistent to potassium hydroxide and sodium hydroxide. Frequently from four to seven days of soaking in these chemicals was required to obtain satisfactory preparations. The best and quickest results were observed when the granules were boiled from ten to fifteen minutes in a porcelain dish with a 40 per cent solution of potassium hydroxide or sodium hydroxide in a waterbath.

On microscopic examination teased granules, thinly spread out between the slide and cover slip, showed a fungus with irregular septate branched hyphae of from 2.8 to 6.5 microns in diameter. The length of the interseptal segments varied from 10 to 14 microns. Ovoid bodies (8 by 15 microns), detached or in short strings or round bodies of from 21 to 27 microns in diameter, were interpreted as chlamydospores. Formations which would suggest oidia or arthrospores were not observed. Between the mycelial elements a certain amount of brown granular material was found.

Cultural Characteristics.—The primary cultures were obtained by planting freshly removed black grains on glucose agar and plain agar. Pus from the lesions was found to be sterile, and it failed to produce the organism. Numerous attempts at primary cultures on Sabouraud's maltose and glucose proof agar were unsuccessful. Grains kept in dry, cotton-plugged sterile test tubes yielded positive cultures as long as nineteen days after removal from the patient.

Fig. 4.—Granules from patient infected with Madurella americana soaked in potassium hydroxide and crushed between slide and cover slip. High magnification.

The most favorable medium was ordinary glucose agar. In the first eight to ten generations the aspect of the cultures was fairly constant—the center duveteuse and brown, a ring of wartlike gray or brownish efflorescences and outside of it gray or white duveteuse mycelium. In the first generations it took from four to five days (at 37 C.) before a growth appeared. After frequent transplantations the growth became much more rapid, and after twenty months, in the sixtieth generation, new delicate white hyphae were noted on examination with a hand lens, after from eighteen to twenty-four hours. At the same time all cultural characteristics were lost. Only a thin, grayish-white, cobweb-like, undifferentiated mycelium covered the entire surface of the glucose agar slant within three weeks.

A most striking feature was the formation of a brown pigment. A few days after the growth became visible, the culture medium around and beneath the

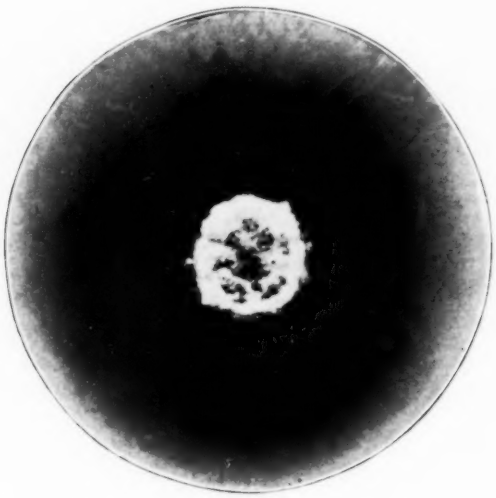

Fig. 5.—Growth of Madurella americana on 1 per cent glucose agar; fifth generation.

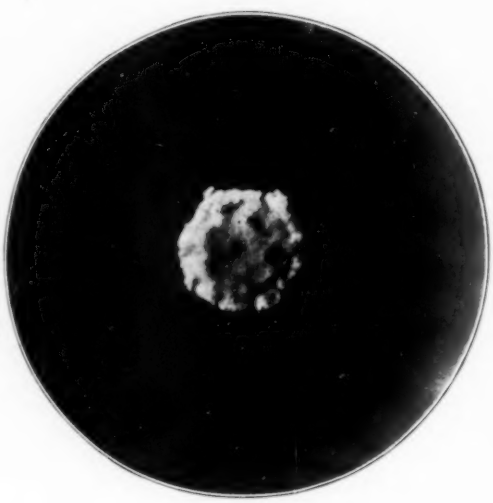

Fig. 6.—Growth of Madurella americana on 1 per cent glucose agar; fifth generation.

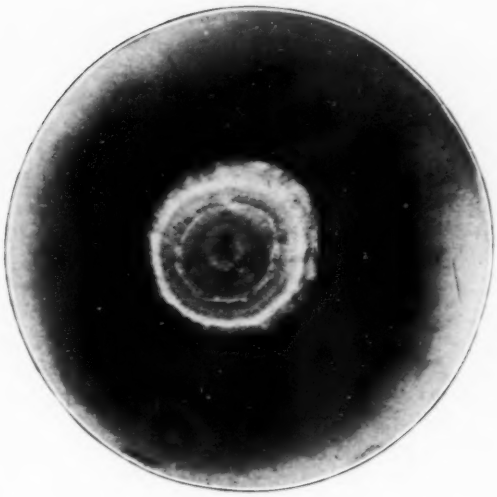

Fig. 7.—Growth of Madurella americana on 1 per cent glucose agar; twenty-fifth generation.

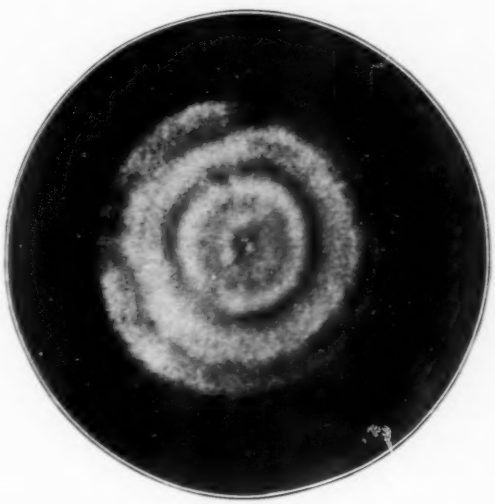

Fig. 8.—Growth of Madurella americana on 1 per cent glucose agar; twenty-fifth generation.

colonies took a brown color, which deepened and spread more and more, until finally the medium was chestnut brown.

At first this organism did not grow at all on Sabouraud's proof mediums. After about the tenth generation it was possible occasionally to obtain a take on Sabouraud's glucose agar, but only when small particles of glucose agar with rhizoidal hyphae were inoculated. The colonies were discoid, yellowish and later deep brown, and of somewhat powdery appearance. The diameter never exceeded 1.5 cm.

Lately, also, inoculations on Sabouraud's original maltose agar were sometimes successful with the technic described above. The colonies either resembled the growth on Sabouraud's glucose agar or formed a dark brown, wrinkled membrane of almost cerebriform character. The naturally brown tint of Sabouraud's sugar mediums was deepened.

On Grütz's [66] "Deutscher Pilzbestimmungsagar" a growth was obtained easily. The colonies were first gray, and later yellow or reddish brown. The mycelium either was uniformly tomentous, with a central knob, or had fissures radiating from the center.

The growth on Sabouraud's preservative (peptone) agar was usually remarkable. The mycelial filaments spread cobweb-like, at first barely visible, toward the periphery; later on they became more tomentous. After about two weeks a black granule (sclerotium) formed in the center, and at the same time numerous similar granules appeared about 0.5, 1, 2 and 3 cm. from the center and formed one or several concentric rings around it. These granules had a diameter of about 0.5 to 1 mm. and were either on the surface or just beneath it. The medium itself sometimes did and sometimes did not take a brown tinge.

The growth on potato was furlike, first white and later pale brown with no tendency to spread. The potato was blackened beneath the colony.

The organism was also cultured on plain agar, glycerin-agar, glucose glycerin agar, ascites agar, egg agar, blood agar, Loeffler's serum agar, von Drigalsky's medium, coagulated human blood serum and a few other mediums. As a rule, insignificant small colonies consisting of white mycelium were formed. Daughter colonies on solid mediums were not observed in a single instance, not even when the culture tube was shaken violently. This was considered a sign that the fungus in question probably belonged to *Arthrosporineae* or *Aleuriosporineae*.

The appearance of this organism was almost identical in all liquid mediums: a powderpuff-like growth on the bottom of the culture tube, sometimes with black granules in the center. When old the growth was most luxurious in potato infusion and peptone water, less abundant in plain broth and glucose broth and rather poor in Sabouraud's original glucose peptone broth. On Ecker's synthetic medium (p_H 7.8) and in Raulin's fluid for molds the colonies remained smaller and were more flocculent. In the latter medium growth was not obtained during the first generations and even later only when a particle of culture medium was transplanted and not only air hyphae alone. Most mediums darkened slowly—became brown in the same degree as they contained certain carbohydrates. As the mediums evaporated and their specific gravity increased, the fungus ascended to the surface of the culture fluid and sealed it with a dense mycelial growth.

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66. Grütz, O.: Beiträge zur Kultur der Dermatophyten und ihrer Artunterscheidung mittels deutscher Pilznährboden, Dermat. Wchnschr. **76**:568 (June 26) 1923.

Sclerotia.—Sclerotia were formed early, constantly and in great number on Sabouraud's preservative medium. In plain and glucose agar they were much rarer. On glucose agar they appeared sometimes as large, black plaques. In liquid culture mediums, especially in spinal fluid, the sclerotia were small and black, resembling minute particles of coal. Microscopically there was a slight difference between the sclerotia from the cultures and the grains from the patient.

Microscopic Examination.—Material of cultures on solid mediums was soaked in a 40 per cent solution of potassium hydroxide or sodium hydroxide, teased and examined. Cultures on glucose agar were embedded in paraffin, and serial sections were stained with hematoxylin eosin. Hanging drop cultures with plain broth, peptone water, potato infusion, Sabouraud's glucose peptone broth or a broth in which the French glucose massée de Chanut was substituted by American glucose Pfanstiehl were observed over periods varying from one to thirteen

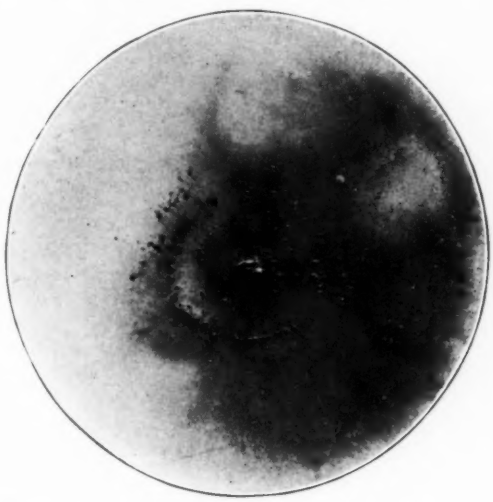

Fig. 9.—Madurella americana; typical growth on Sabouraud's preservative agar with numerous sclerotes on the surface.

months. About every three months the culture fluid was replaced. The microscopic appearance of the fungus depended greatly on the type of culture medium used.

In plain broth, peptone water and potato infusion in which the growth is luxurious, the formation of any sporiform elements was rarely observed. The hyphae were sterile, straight, cylindric tubes radiating from the center and branching by dichotomy. At first they were hyaline and unseptate; later they became septate, and the interior of the mycelial segments was filled with one or more fine oily droplets. The diameter of the hyphae in these mediums varied from 1 or 1.5 to 2.3 microns, the interseptal segments had an average length of about 10 microns. Occasionally the terminal ends of some hyphae became swollen, somewhat resembling "favic nails."

Considerably different was the appearance of hanging drop cultures with a broth containing 4 per cent American glucose Pfanstiehl and 1 per cent peptone granulée de Chassaing. Only the youngest hyphae were hyaline; soon they became

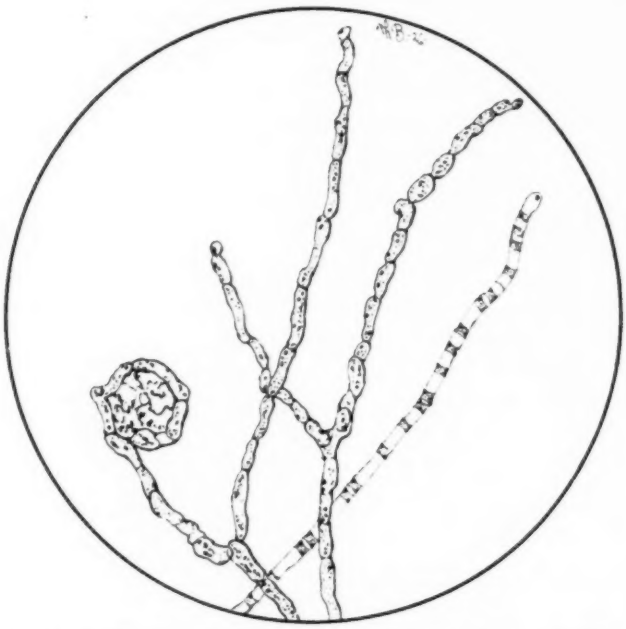

Fig. 10.—Madurella americana; arthrospore and loop formation in old hanging drop culture with glucose (Pfanstiehl) peptone broth.

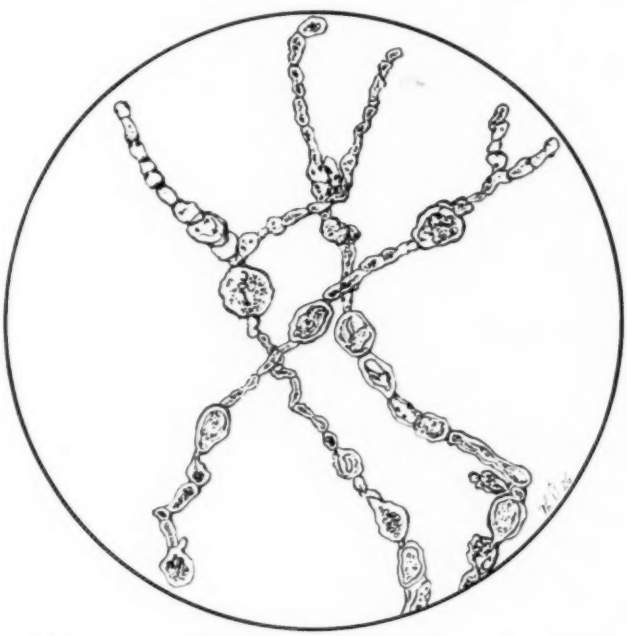

Fig. 11.—Madurella americana; strings of chlamydospores in old hanging drop culture with Sabouraud's glucose peptone broth.

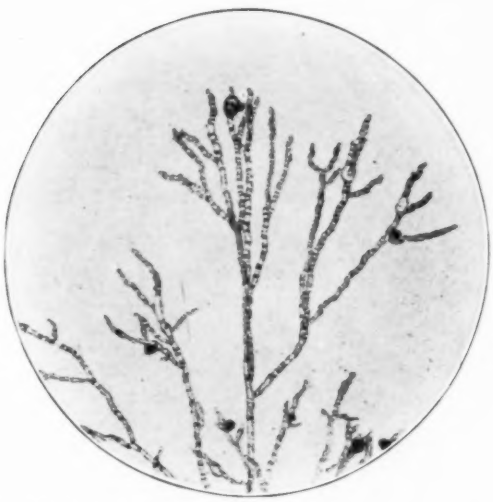

Fig. 12.—M804, Madurella americana; hanging drop culture with Sabouraud's glucose peptone broth, 3 months old; septate regular hyphae with beginning chlamydospore formation.

Fig. 13.—M718, Madurella americana; hanging drop culture with glucose (Pfanstiehl) peptone broth, 11 months old; arthrospore formation (*x*), hyphae brown and granular.

granular and brown. The mycelium consisted of a rather dense network of bent and curved hyphae. Branching occurred frequently by dichotomy as well as laterally. The formation of loops and short spiral organs made up of septate hyphae was often noted. The diameter of the hyphae varied between 2.5 and 3 microns. In the brown hyphae the septums were often invisible.

Certain mycelial filaments contained oily droplets, which increased in size, became confluent and pressed the protoplasm toward the partition walls. Here sporiform elements with square cut ends resulted, usually two originating from one segment. A destruction of the mycelial tubes, which include these spores or a rounding off of the ends, was never observed. Chlamydospores were rare in this medium.

Hanging drop cultures with Sabouraud's original glucose peptone broth were rather difficult to grow. Their aspect on microscopic examination was again different from the two pictures described before. The hyphae had a diameter of from 4 to 5.2 microns; they were brown and continuous in the central por-

Fig. 14.—M412, Madurella americana; hanging drop culture with Sabouraud's glucose peptone broth, 6 months old; abundant formation of chlamydospores.

tions, but interrupted by partition walls in the periphery. Here they were less pigmented, sometimes even hyaline. Abundant branching of the mycelium with all hyphae centrifugally directed gave the major branches of the hanging drop colonies the appearance of birthtwigs (arborization). The mycelial segments were well defined, and rather irregular in shape and length. Some were as long as 22 microns. Many segments swelled up greatly and were transformed into brown more or less granular chlamydospores of from 12 to 15 microns in diameter. Lateral and terminal chlamydospores were also observed in very old cultures, and most mycelial filaments were transformed into strings of variously shaped chlamydospores.

In the periphery of some cultures in Sabouraud's broth, where two or three hyphae met, abundant branching in all directions and a dense interlacing of these hyphae occurred. These organs which usually were formed outside the culture fluid were observed over a period of months, but no other changes than formation of chlamydospores was noted.

The study of teased preparations and of sections of cultures on solid mediums failed to give any additional information concerning the life history of the organism.

Ferment Production.—Dextrin, inulin, lactose, levulose, maltose, mannite, saccharose and salicin in broth were not fermented.

Whole Milk and Litmus Milk.—These showed a heavy black brown surface growth and coagulated the seventh to fifteenth day in the incubator. After from eight to twelve weeks they were completely fermented. The fluid was clear and brown, and a coarse heavy flocculent precipitate covered the bottom of the culture tube.

Gelatin.—Gelatin liquified slowly. A dense yellow mycelial growth with abundant sclerotia of 1 mm. diameter sealed the surface. Brown pigment diffused down into the translucent medium. The bottom of the culture tube was covered with a fine white sediment.

Pigment Production.—The pigment formation varied in the different carbohydrates. It was abundant in galactose, glucose, maltose and dextrin, moderate in levulose and poor in saccharose, inulin and lactose. The amount of pigment production in the same medium was independent from the influence of light and paralleled only by the speed of the growth which in turn depended on the temperature.

The pigment could be extracted easily from old solid culture mediums with distilled water but not with chloroform or ether. On evaporation a reddish brown amorphous powder resulted.

The optimal temperature was 37 C., a feature which remained absolutely constant. Old cultures had a slightly fecal odor.

The fungus was strictly aerobic. The development of young broth cultures was inhibited immediately when the fluid was sealed with a layer of vaseline. Growth over chloroform was restricted (tube covered with rubber cap).

The organism, as a rule, was gram-negative, although some filaments occasionally took the Gram stain. It tinged readily with most of the usual laboratory dyes, especially eosin 1:400 and Sahli blue.

Animal Experiments.—All attempts at thirty-five animal inoculations were negative—using monkeys (macacus rhesus), rabbits, guinea-pigs, white rats, white mice and pigeons. Suspensions made up from material from old and young cultures on different solid and liquid mediums, pus and crushed granules from the patient were injected intra-arterially, intraperitoneally, intravenously and subcutaneously, into the anterior chamber of the eye, into traumatized tissue or into the hand or foot, or were brought into the conjunctival sac after injuring the epithelium of the cornea.

Drs. Thompson's and Ikeda's Case.—A colored man, aged 39, born in Texas and never having left the United States, had had an accident in 1914, in which a heavy plank fell on the toes of his right foot. The toes became swollen, leaving no sensation after the swelling disappeared. Two years later a small growth appeared between the big and second toes which gradually enlarged. In 1924 it began to be painful and to discharge pus through cracks in the skin. This condition continued until 1926; the swelling reached the size of a hen's egg. In the discharge black grains of about pinhead size were noticed. The tumor was excised and the wound allowed to heal over by granulation. The patient said that he found lately a small grain in the still open wound. Therefore, a recurrence of the condition is probable.

Dr. Ikeda sent black granules in a test tube, one grain implanted on agar and a microscopic section of a grain in situ to me for further study.

On gross examination, the black granule seemed to be identical with the ones I had observed. On microscopic examination, however, there were certain differences. The black pigment was resistant to bleaching agents as potassium hydroxide, sodium hydroxide and Eau de Javelle, and therefore teased prep-

Fig. 15.—Maduromycosis caused by Madurella ikedai. Photograph from Dr. K. Ikeda.

Fig. 16.—Cut surface of growth removed at operation, showing black grains in situ. Photograph from Dr. K. Ikeda.

arations revealed only mycelial fragments and sporiform elements, but did not permit a detailed study. Much more satisfactory was the examination of the grain in situ in the section. Here branched hyphae of from 2.3 to 3.1 microns in diameter and occasional chlamydospores were clearly demonstrated. Especially striking was the presence of numerous moniliform strings of regular, round or subround spores of from 2.9 to 3.1 microns in diameter. Also single spores of the same size were noticed in all parts of the grain.

Attempts to obtain cultures from the grains failed on account of contamination with monilia. However, the grain which Dr. Ikeda had planted on a solid medium gave a pure culture. When it arrived the granule was covered with a duvet of grayish white mycelium with a brown halo around the culture.

The most favorable culture medium for this fungus also was ordinary glucose agar. The pigment formation and the gross characteristics on this medium were the same as mine were during the first few months.

The organism grew fairly well on Sabouraud's glucose and maltose agar and on Grütz's "Deutscher Pilzbestimmungsagar." The colonies on these mediums were small, the diameter not exceeding 1.5 cm., acuminate and grayish or light brown. The air hyphae were short.

On Sabouraud's preservative agar, numerous sclerotia of about 1 mm. in diameter were formed on the surface and in the depth. Soon the entire medium was invaded by rhizoidal hyphae, while the air hyphae remained short and showed on some points a fluffy growth. The water of condensation assumed a yellow tinge.

Daughter colonies on solid mediums were observed occasionally. The characteristics of this organism in liquid mediums were identical with mine. Only in Raulin's fluid there was a difference. The colonies consisted of small balls of dense black mycelium with short hyphae.

Microscopic Examination.—Teased preparations from colonies on solid mediums were studied as well as hanging drop cultures.

In six weeks old hanging drop cultures with glucose (Pfanstiehl) peptone broth the hyphae were hyaline or subhyaline, occasionally with fine granules, much bent and curved, of a diameter of not less than 1.5 microns. The septums were in irregular intervals and clearly visible. Some hyphae broke up into a moniliform string of round or subround spores. These spores (oidiospores)[67] were formed by strangulation of a mycelial segment in its center and were of the same diameter as the parent hypha. Chlamydospores were rare or absent; pigment formation was slow. The ends of some mycelial filaments coiled up and formed short spirals with from 1 to 3 turns.

In Sabouraud's glucose peptone broth the young mycelial filaments were hyaline, of from 2 to 5 microns in diameter and formed a dense meshwork, growing in all directions. Soon the mycelial segments were transformed into long strings of chlamydospores, which were vesicular or granular, of a diameter up to 20 microns. Old hyphae and chlamydospores were brown, granulated and even seemed to be covered with fine brown granules. Strings of (oidio-) spores were likewise present.

Ferment Production.—Dextrin, inulin, galactose, lactose, levulose, maltose and saccharose in broth were not fermented.

Whole milk and litmus milk were completely fermented. Gelatin was slowly liquified; sclerotia were not formed in the surface growth of this medium.

Pigment Production.—Pigment production was abundant in glucose, galactose and maltose, moderate in mannite and levulose, poor in dextrin and inulin and absent in saccharose and lactose broth (thirty days' observation).

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67. "Where the whole hypha is divided up into a chain of spores one close after the other in close order, such spores are called oidiospores." Harshberger, J. W.: A Textbook of Mycology and Plant Pathology, Philadelphia, P. Blakiston's Son & Co., 1917, p. 50.

Fig. 17.—J28, Madurella ikedai; hanging drop culture with glucose (Pfanstiehl) peptone broth, eight weeks old; formation of oidiospores (*x*).

Fig. 18.—J28, Madurella ikedai; hanging drop culture with glucose (Pfanstiehl) peptone broth, eight weeks old; loop formation of sterile hyphae.

The optimal temperature was 37 C. This fungus was strictly aerobic. Growth over chloroform was restricted.

Animal Experiments.—Two rabbits were injected intraperitoneally with a mixed suspension of several cultures. One animal died of an intercurrent respiratory infection and the other one is well.

Dr. Ikeda injected suspensions of cultures directly into the lungs, liver, peritoneal cavity, marginal vein of the ear and inguinal glands, as well as beneath the skin of the back and soles of several rabbits and guinea-pigs, without reproducing the infection.

COMMENT

It is obvious that as the fungi in question reproduce by spores which are not contained in asci or basidia they must be placed in Fuckel's class *Fungi imperfecti* or *Hyphomycetes*. As no accessory organs of fructification can be seen, and as reproduction appears to be by means of spores situated on hyphae, they belong to Vuillemin's subclass *Hyphales*. As the spores are formed by fragmentation of the thallus it is equally manifest that they must be placed in order *Thallosporales*, suborder *Arthrosporineae*, both defined by Vuillemin in 1910. The suborder contains the following genera:

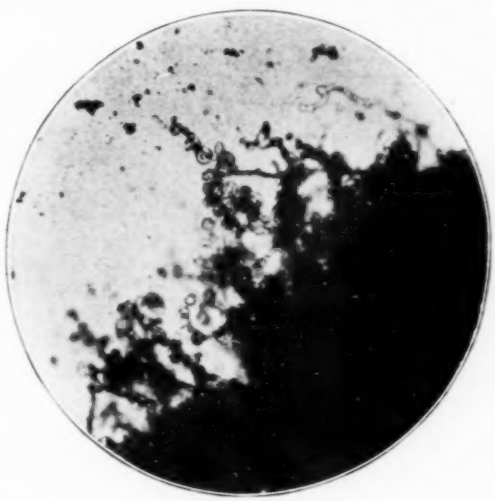

Fig. 19.—J30, Madurella ikedai; hanging drop culture with Sabouraud's glucose broth, six weeks old; abundant formation of chlamydospores.

1. Genus *Trichophyton*, Malmsten, 1848.
2. Genus *Epidermophyton*, Lang, 1879.
3. Genus *Microsporum*, Gruby, 1843.
4. Genus *Achorion*, Remak, 1845.
5. Genus *Trichosporum*, Behrend, 1890.
6. Genus *Mycoderma*, Persoon, 1822.
7. Genus *Madurella*, Brumpt, 1905 (black maduromycosis).
8. Genus *Indiella*, Brumpt, 1905 (white maduromycosis).

It is apparent that both organisms described here belong to genus *Madurella,* Brumpt, 1905, emendavit Pinoy, 1912. As shown in the first part of this paper, six species have so far been assigned to this genus and the present question is whether my fungi are identical with any one of them.

After a careful study of the literature, the organism which I isolated was considered a new species and the name *Madurella americana* was proposed for it. Then my cultures together with a preliminary report were submitted to Professor Brumpt and Dr. M. Langeron of the University of Paris. These investigators confirmed my observations, and Dr. Langeron gave his opinion on the differentiation of the species of genus *Madurella* in the following letter of April 30, 1925:

. . . . Dans le genre Madurella, la distinction des espèces manque de précision, par suite l'insuffisance des diagnoses et des figures qui ont été publiées. Ces diagnoses reposent le plus souvent sur des caractères culturaux très inconstants et difficiles à apprécier. Il est difficile de savoir si les différences de coloration, la production de pigment, la formation des sclérotes sont des caractères constants ou des variations individuelles, provenant de la composition des milieux, de leur teneur en eau, de la dimension et du diamètre des tubes etc.

Les caractères proprement biologiques, tels que la thermophilie, le pouvoir gélatino-lytique, les réactions fermentatives, le pouvoir pathogène expérimental, peuvent donner lieu à des distinctions plus précises.

Les caractères microscopiques sont aussi très imprécis; tout ce qu'on a signalé jusqu'ici c'est la présence dans les grains et dans les cultures de filaments mycéliens, de chlamydospores terminales ou intercalaires et d' arthrospores ou oïdies. Aucune forme conidienne n'a encore été publiée. En outre, suivant l'état d'hydratation du milieu et suivant sa teneur en sucres les articles des filaments mycéliens sont plus ou moins toruleux et gonflés ou minces et allongés. L'appréciation de ces caractères est en grande partie d'ordre subjectif et n'est pas susceptible de mensuration ou de numération.

Pour étudier correctement un mycétome, j'estime qu'il faut suivre la marche suivante:

1. *Caractères des grains dans les lésions:* couleur, consistance, aspect extérieur (régulier ou non), dimensions, structure (présence et proportion relative du mycelium de la substance interstitielle), présence de chlamydospores, attaque des os, action du traitement ioduré.

2. *Caractères culturaux:* possibilité des cultures, température optima, milieu optimum, coloration, production de sclérotes, production de pigment, liquéfaction de la gélatine.

3. *Caractères microscopiques:* caractère du mycélium, présence ou absence de chlamydospores, d'arthrospores ou oïdies, d'appareils conidiens.

4. *Pouvoir pathogène expérimental.*

Pour conclure, je crois que dans l'état actuel de nos connaissances vous pouvez légétimement considérer ce Madurella comme une espèce nouvelle. . . . .

After receiving these most valuable suggestions I continued the investigation, attempting especially to bring out those points which previously had been overlooked. I found, with Dr. Langeron, that the

cultural characteristics also in my organism were inconstant and therefore not of value in differential diagnosis and that the microscopic aspect depended a great deal on the percentage and, last but not least, the make of the sugar. In the same medium, however, it was constant. In my first publication on *Madurella americana* I had reported the reproductive cells as oidia. Further observations convinced me that these oidia should more properly be considered as chlamydospores and that the occasional spores observed were true arthrospores with square cut ends. A conidial apparatus was also mentioned previously, which later on proved to be due to a contamination with *Scopulariopsis*.

When in May, 1926, Dr. Ikeda sent his organism for identification, the following differences were found in a comparative study of the two organisms, in a series of cultures, under exactly the same conditions as to light, temperature, culture mediums, oxygen supply, etc.:

Madurella Americaca	Dr. Ikeda's Fungus
Considerable amount of interstitial substance; grain consists of abundant chlamydospores and irregular mycelial filaments, no spores.	Small amount of interstitial substance; grain consists of fairly regular hyphae, numerous torulose spores, a few chlamydospores.
Growth on Sabouraud's glucose agar poor, inconstant and possible only after numerous transplantations. Sabouraud's maltose agar still less favorable.	Grows fairly well in Sabouraud's glucose and maltose agar.
Sclerotia numerous on surface of Sabouraud's preservative agar and gelatin.	Sclerotia numerous on surface and in depth of Sabouraud's preservative agar, absent or rare in gelatin.
HANGING DROPS WITH SABOURAUD'S GLUCOSE PEPTONE BROTH	
Filaments rather straight, formation of chlamydospores late, usually no arthrospores or oidiospores.	Filaments irregular, formation of moniliform oidiospores and large chlamydospores abundant from the start.
HANGING DROPS WITH FOUR PER CENT GLUCOSE (PFANSTIEHL) PEPTONE BROTH	
Hyphae granular and brown, formation of arthrospores with square cut ends only after several months and in small number. Oidiospores rare or absent.	Hyphae hyaline or subhyaline, chains of oval oidiospores are formed early and in great number.

A comparative study of the pigment formation in carbohydrate broth was carried out over a period of thirty days and the results were tabulated (table 2) and compared with the data in the literature on *Madurella tozeuri*.

TABLE 1.—*Comparison Between the Characters of the Different Species of the Madurella Group*

Madurella	mycetomi			oswaldoi	ramiroi	tabarkae	tozeuri	americana	ikedai
Reported by	J. Brault	Yazbek	Noe and Jouenne						
Grain	Hard, black, sometimes conglomerated; large septate filaments with intercalary chlamydospores of from 7 to 12 microns in diameter	Hard, black, sometimes conglomerated; filaments brown of more than 1 micron in diameter	Hard, black from pinhead to pea size; articles from 3 to 15 microns long and 3 to 5 microns in diameter; intercalary chlamydospores from 16 to 25 microns in diameter	Grains black	Granules black, hard, gunpowder-like	Numerous, hard, irregular filaments of from 1 to 4 microns in diameter; terminal and intercalary chlamydospores (from 10 to 12 microns)	Hyphae from 1 to 4 microns in diameter; intercalary chlamydospores; grains formed around blood vessels; small	Considerable amount of interstitial substance; grains black, hard, consist of abundant chlamydoscores and irregular mycelial filaments	Small amount of interstitial substance; grains black, hard, consist of fairly regular hyphae, numerous moniliform spores, rare chlamydospores
Optimal culture medium	Glycerinated glucose agar	Sabouraud's glucose and maltose agar	Sabouraud's glucose agar	?	Potato and Sabouraud's glucose	Carbohydrate mediums	Glycerin agar (?)	One per cent glucose agar	One per cent glucose agar
Growth on Sabouraud's proof mediums	Fine grayish white duvet, becoming yellow when old; radiated, concentric circles	Mycelium grayish, later black; center depressed, with radiating fissures	Round brown, moist and scarlike, or brown duveteuse with white efflorescences	Central knob deep depression with fissures; white to purple	Dark, cerebriform; stains mediums brown	Luxurious; center wrinkled, coppered, periphery greenish yellow, old cultures brown	Mycelium white, yellowish when older, powdery farinulent; agar is like larded	Deep brown, poor and inconstant; glucose agar somewhat more favorable than maltose agar	Acuminate, light brown colonies on Sabouraud's glucose and maltose agar
Formation of sclerotia	From 0.5 to 2 mm. in diameter; sometimes numerous in depth of medium	1 mm. in diameter; dark yellow	Formed also in potato water and peptone broth	Absent	Rare	On all mediums except potato and solid sugar medium	Rare, small and on surface only	Numerous on Sabouraud's preservative agar and gelatin	Numerous on surface and in depth on Sabouraud's preservative agar
Optimal temperature	37 C.	37 C.	From 38.5 to 39 C.	?	Room temperature	22 C.	35 C.	37 C.	37 C.
Gelatin	.....	Not liquified	Liquified	?	?	Not liquified	Liquified	Liquified	Liquified
Milk	.....	Not coagulated	?	?	?	Coagulated	Coagulated	Completely fermented	Completely fermented
Microscopic examination	Spores 2, 5 and 8 microns in diameter; chlamydospores formed at end of filaments like favic nails	Fine regular filaments consisting of more or less irregular articles; yellow and brown	Moniliform filaments with terminal and intercalary chlamydospores	?	Septate hyphae fine and regular, or thicker and consisting of spores of 2.7 microns in diameter; chlamydospores	Great resemblance with Glenospora khartoumensis but no aleuriospores	Spores small, (2, sometimes 5, microns)	Filaments rather straight, granular or brown from 1 to 5.2 microns in diameter; chlamydospores late; arthrospores rare; oidiospores usually absent	Filaments bent and curved from 1 to 5 microns in diameter; abundant formation of moniliform oidiospores and chlamydospores; hyphae hyaline or subhyaline
Pathogenicity for animals	Not pathogenic for rabbits, guinea-pigs, chickens and pigeons	Positive on intraperitoneal injection in rabbits; negative in pigeons and guinea-pigs	Animal experiments negative	Not pathogenic for animals	Not pathogenic for animals	Positive in feet of pigeons; not pathogenic for monkey and guinea-pigs	Positive in feet of pigeons	Not pathogenic for monkeys, guinea-pigs, rabbits, white mice and rats, pigeons	Not pathogenic for rabbits and guinea-pigs
Effect of treatment	Cured by local measures	Iodides without benefit; surgical intervention advised	Three cases cured by potassium iodide, neoarsphenamine, curettage and iodoform	?	Iodides and injection of lodargol without effect; amputation	Arsphenamine and iodides without result; enucleation; recurrence after two years	Not treated	Potassium iodide, arsphenamine, roentgen ray, curettage with	Enucleation; recurrence

On comparison with the characteristics of the other species *Madurella* —as far as available in the literature and found in table 1—I feel that Dr. Ikeda's fungus is also an undescribed species, at least at the present state of knowledge, and propose for it the name *Madurella ikedai.*

TABLE 2.—*Comparative Thirty Day Study of Pigment Formation in Carbohydrate Broth*

	M. americana	Dr. Ikeda's Fungus	M. tozeuri
Mannite	+++	+++	Abundant
Maltose	++++	++++	Abundant
Dextrin	++++	++	Abundant
Levulose	+++	+++	Abundant
Saccharose	+	None	Poor
Inulin	+	+ ?	?
Galactose	++++	++++	Poor
Lactose	+	None	Abundant

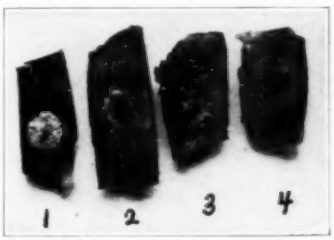

Fig. 20.—(1) Madurella ikedai on Grütz agar; (2) and (3) Madurella americana on Grütz agar; (4) Madurella americana on Sabouraud's glucose agar.

CONCLUSIONS

The granuloma maduromycosis may be caused by a great variety of organisms—in fact, almost every fungus thoroughly studied so far was considered a new species. Facts relating to the modus of transmission are not known, but usually it is found that the disorder started with an injury as, for example, a thorn bruise. It is probable that the causative fungi live as saprophytes on plants—especially in the warm countries—and may become pathogenic for man occasionally. Also, the two organisms described in this paper are probably new species belonging to Brumpt's provisional genus *Madurella.* This genus was created in 1906, from a clinical point of view, and the investigations of the last twenty years have demonstrated that most fungi causing black grain maduromycosis resemble each other closely enough to be placed in one genus.

At present, the complete life history of these organisms is not known, and therefore they are grouped with the fungi imperfecti. The investigations have shown loop and spiral formation which probably are the first rudiments of an ascospore stage. As long as the factors are not

known which influence permanently the chemical and biologic behavior and action, as well as the macroscopic and microscopic aspects of these molds, one is entitled to establish a new species when organisms are found which differ in essential points from the known species.

Complement fixation and other serologic tests have been attempted already by several authors, but the results did not encourage me enough to extend my research in that direction.

Clinical Course.—The incubation period of the mycetomas is unknown. It seems to vary from a few months to several years. Swelling and moderate pain are the first symptoms. Then nodules or pustules appear, which open and discharge variously colored grains in an oily, semipurulent blood streaked fluid. The openings lead into superficial or deep sinuses. An involvement of the bone is not uncommon in the actinomycotic type of mycetoma, but in the maduromycoses it is probably always the result of secondary infection. Since there is not any tendency to spontaneous healing, the disorder progresses slowly and, if the proper treatment is not administered, terminates in death, due to cachexia and secondary infection. What particular conditions in the patient or in the fungus favor the primary infection are utterly unknown.

Pathology.—The microscopic changes of the mycetomas are rather uniform, in spite of the great variety of causative agents. The grains usually are surrounded by giant and epitheloid cells. These nodules are embedded in highly vascular connective tissue with numerous lymphocytes, some polymorphonuclear leukocytes and occasional plasma cells. Small hemorrhages are scattered throughout this layer, and eosinophil bodies may be observed in the hemorrhagic parts. Endarteritis and endophlebitis are frequent. The pathologic picture is that of a granuloma. My own observations were in accord with this description, which has been taken from the literature (Langeron [18]).

Treatment.—The treatment of the maduromycosis is far from being satisfactory. Noc and Jouenne state that in Africa the black grain type is considered as the most benign. Since the disorder usually extends over many years and the subjective symptoms are mild, conservative measures, as potassium iodide in full doses, arsphenamine, mercurochrome-220 soluble (Audrain [68]), thymol and oil of cinnamon, curettage or enucleation should be given a fair trial. A considerable number of "cures" are found in the literature but must be received with great reserve because in most instances the period of observation was too short and recurrences of this extremely chronic condition after two and more years are frequent. The last refuge is always amputation.

68. Audrain, L. C.: Case of Mycetoma, J. A. M. A. **83**:1165 (Oct. 11) 1924.

SUMMARY

1. Maduromycoses are those forms of mycetoma, or Madura foot, which are produced by true molds. From a review of the literature seventeen species belonging to different classes and genera were collected as causative agents in this disease, as follows:

Fungi imperfecti	Genus *Madurella*,	6 species
	Genus *Indiella*,	3 species
	Genus *Glenospora*,	2 species
	Genus *Scedosporium*,	2 species
Ascomycetes	Genus *Allescheria*,	1 species
	Genus *Aspergillus*,	1 species
	Genus *Sterigmatocystis*,	1 species
	Genus *Penicillium*,	1 species

2. The former classification of mycetoma, according to the color of the grains, i. e., yellow, black and red, is no longer of much scientific value, inasmuch as it has been shown that grains of the same color may be produced by even a different genus of fungi. If a further subdivision of the maduromycoses is necessary it should be done from the mycologic point of view. Thus they might be classified as madurellamycosis, indiellamycosis, glenosporosis, scedosporiosis, etc.

3. All these fungi have one common feature—they produce in the human (or animal) body grains composed of hyphae and sometimes chlamydospores. In old cultures and under unfavorable conditions most of them form simple sclerotia which may resemble more or less closely the grains observed in the patient.

4. Knowledge of the mycology of most of the organisms is still rather limited. Therefore, their classification and nomenclature is naturally sometimes rather artificial and only provisional, until more is known about the life history, biology, saprophytic stage and conditions under which they may become pathogenic. At the present state of knowledge one is entitled to establish new species when fungi are found which differ from the known species in essential points, as outlined by Langeron.

5. There have been reported so far in the United States twenty-one cases of mycetoma of which only three were maduromycosis. To this number are added one unpublished case of Dr. Crutchfield in Galveston, one of Dr. K. L. Puestow in Madison, Wis., and one of Dr. Ikeda in Minneapolis.

6. Four of the six maduromycoses were of the black grain variety and the mycologic description of two of the fungi found in this country in connection with the disease is presented.

7. The organisms isolated by Dr. Ikeda and myself are considered as two new species which bring the number of molds observed in maduromycosis to a total of nineteen.

8. The two new organisms are defined as follows:

(*a*) *Madurella americana*, 1925: Mycelium grayish white, when old yellowish brown and darkening certain sugar mediums. Hyphae subhyaline or brown and granular, varying in dimension from 1 to 5.2 microns, according to the percentage and type of sugar. Chlamydospores numerous, especially in Sabouraud's glucose broth, arthrospores with square cut ends rare. Optimal medium 1 per cent glucose agar. Growth on Sabouraud's agar, none or very poor, tomentous or cerebriform on Grütz agar. Sclerotia of 1 mm. in diameter on surface of gelatin and Sabouraud's preservative agar. Liquifies gelatin, ferments milk, thermophile. Pigment formation abundant in glucose, maltose, dextrin and galactose, moderate in levulose, poor in saccharose and lactose, none or very poor in inulin broth. Animal inoculations negative. Isolated from a maduromycosis with black grains in Cleveland.

(*b*) *Madurella ikedai*, 1926: "Mycelium grayish-white; later light brown, darkening certain sugar mediums. Hyphae hyaline or subhyaline, rarely granular, varying in diameter from 1.5 to 5 microns. Chlamydospores numerous only in Sabouraud's glucose broth, in all liquid mediums many hyphae break up into chains of lemoniform or round spores. Acuminate light brown colonies on Sabouraud and Grütz agar. Sclerotia numerous on surface and in depth of Sabouraud's preservative medium, liquifies gelatin, ferments milk, is thermophile. Pigment production abundant in glucose, galactose and maltose, moderate in mannite and levulose, poor in dextrin, poor or absent in inulin, absent in saccharose and lactose broth. Not pathogenic for rabbits nor guinea-pigs. Isolated by Ikeda from a maduromycosis with black grains in Minneapolis."

9. All animal experiments have been negative. In these experiments an attempt was made to use for injection culture material containing chlamydospores as well as spores and hyphae.

ACNE AGMINATA: A TRUE SKIN TUBERCULOSIS

REPORT OF A CASE *

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The name acne agminata was applied by Crocker [1] to a rare acne-like eruption, usually limited to the face. A characteristic feature was a tendency for the lesion to group about the chin, the cheeks, the forehead, the upper lip and the eyelids. Crocker stated that Perry and he had each shown two cases, and Galloway one case, before the London Dermatological Society (date not given). He described the individual lesions as varying in size from that of a pinhead to that of a millet-seed, occasionally a little larger. They were mostly a dull brownish red, but some had a yellow central point with or without a comedo. The majority, however, were not connected with the sebaceous glands. They appeared to be solid but many exuded pus when pressed on. In some instances two or three had coalesced into an oblong nodular patch, producing a lupoid aspect. In general appearance the large discrete lesions resembled an acne but the smaller ones had a glistening waxy aspect, and the tendency to grouping was a marked feature. The general course of development was: first, a shotlike nodule under the skin, felt but not seen; then a slight enlargement of this nodule and reddening of the covering skin, and finally, its appearance above the surface. The lesions eventually underwent involution, with or without suppuration, and usually left a small pigmented scar.

Tillbury Fox [2] had previously reported, as disseminated follicular lupus, three cases presenting a clinical picture similar to Crocker's acne agminata. Other cases with like eruptions have been reported by Kaposi [3] as acne telangiectodes, by Barthelmy [4] (three cases) as acnitis and by Pollitzer [5] as hydradenitis destruens suppurativa. Cases have

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* From the Department of Dermatology and Syphilology, New York University and Bellevue Hospital Medical College, Service of Dr. Howard Fox.

1. Crocker, H. R.: Diseases of the Skin, ed. 3, Philadelphia, P. Blakiston's Son & Co., p. 1164.

2. Fox, Tillbury: Lancet **2**:35-75, 1878.

3. Kaposi, M.: Handatlas der Hautkrankheiten, Vienna and Leipsig, Wilhelm Braumüller, vol. 1, plates 7 and 8.

4. Barthelmy, M.: De l'acnitis, Ann. de dermat. et syph. **2**:1, 1891.

5. Pollitzer, S.: Hydradenitis Destruens Suppurativa, J. Cutan. Dis. **10**:9 (Jan.) 1892.

also been reported as either acne agminata or acnitis by Trimble,[6] Stelwagon,[7] Schamberg,[8] Bowen,[9] Oliver,[10] Ketron [11] and Schamberg and Harkins.[12]

Of the patients eleven were males and eight females. The ages varied from 17 to 47 years, with an average of 28. There was a history of personal tuberculosis in two instances; family tuberculosis in six, and dilatation of the stomach, rheumatism and influenza in two each. In two reports mention is made of the fact that the patients were acutely ill at the outbreak of the disease. The duration of the eruption varied from three months to three years, the average being slightly over one year. The clinical picture was practically the same in all cases and was characterized by grouped nodules and papules, usually limited to the face. There were, however, discrete lesions on the penis in two cases, on the arm and the shoulder in one, and on the knuckles of the right hand in another. In most cases the eruption appeared suddenly and developed quickly, and new elements appeared in crops from time to time. They eventually underwent involution, disappeared and left typical depressed scars.

REPORT OF A CASE

T. F., a white man, aged 54, was born in Italy, one of a family of fifteen. His father died at the age of 96 and his mother was 80 at the time of her death. All of his brothers and sisters were still living.

The patient had always been well until a few months before the onset of the disease, when he developed what he vaguely described as stomach trouble. This persisted in spite of treatment until an eruption developed on his face, at which time he became quite sick, suffering from general malaise, weakness and fever, which lasted several weeks.

Two months before his first visit to the clinic he noticed several red spots appearing on his chin, in which he could feel small hard nodules beneath the surface. In a few days similar lesions developed on the forehead and right cheek. In less than a week the left cheek became similarly involved, and at the end of two weeks there were lesions on the upper lip, the nose and the face around the alae nasi. Gradually the red spots became smaller and the nodules began to appear above the surface of the skin.

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6. Trimble, W. B.: A Case of Acne Agminata, J. Cutan. Dis. **26**:309 (July) 1908.

7. Stelwagon, H. W.: A Probable Case of Acnitis, J. Cutan. Dis. **26**:477 (Oct.) 1908.

8. Schamberg, J. F.: A Study of Acnitis with Report of an Extreme Case, J. Cutan. Dis. **27**:14 (Jan.) 1909.

9. Bowen: Acnitis, J. Cutan. Dis. **28**:693 (Dec.) 1910.

10. Oliver, W. T.: A Case of Acne Agminata, Brit. J. Dermat. **26**:439 (Dec.) 1914.

11. Ketron, L. W.: Report of a Case of Acnitis, etc., Bull. Johns Hopkins Hosp. **26**:111 (April) 1915.

12. Schamberg, J. F., and Harkins, M. J.: Acnitis, with Particular Reference to the Bacteriologic Findings, Arch. Dermat. & Syph. **11**:339 (March) 1925.

When first seen at the clinic he presented an eruption on the forehead, the cheeks, the upper lip, the chin and the nose, consisting of discrete, flat and accuminate, brownish red papules. They ranged in size from that of a pinhead to that of a lentil and were surrounded by an area of erythema. The lesions on the forehead, the cheeks and the chin were distinctly grouped but showed little or no evidence of confluence. On the nose the lesions were more or less isolated, with little tendency to grouping. The smaller and newer nodules

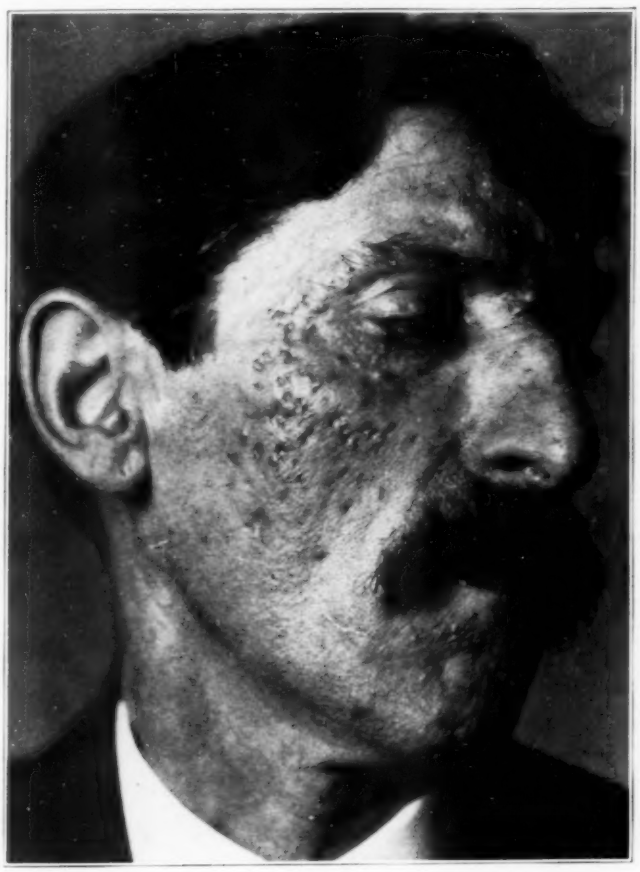

Fig. 1.—Acne agminata.

were flat, translucent and waxy in appearance; while the older and larger papules were more often accuminate, many with slight scaling and a minute area of necrosis and crusting at the apex. They were rather firm to the touch and in only a few was there any evidence of pustulation; when this did occur it was small in amount and at the apex of the papule. At this time, also, the remains of a few similar lesions were seen on the dorsal surfaces of both hands which, the patient stated, had been present for about a month.

While under observation, a period of about ten months, the lesions appeared in successive crops, each element taking on an average one month for develop-

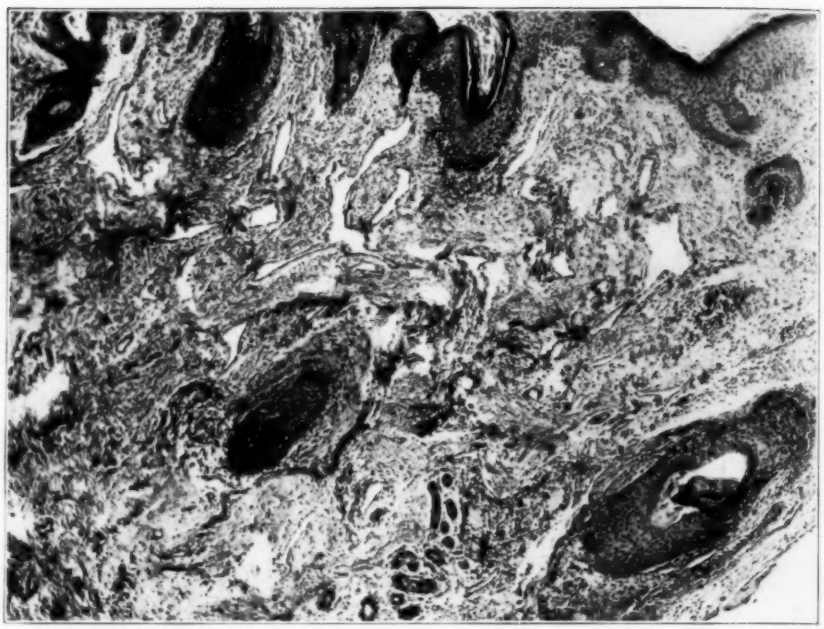

Fig. 2.—Low power photomicrograph showing: (1) edema and markedly dilated veins and lymph vessels; (2) in the lower midportion to the left, a hair follicle with an early tubercle containing a giant cell of the sarcoid type; (3) to the right and below, a coil gland being destroyed and replaced by an irregular shaped tubercle formation containing several giant cells of the sarcoid type.

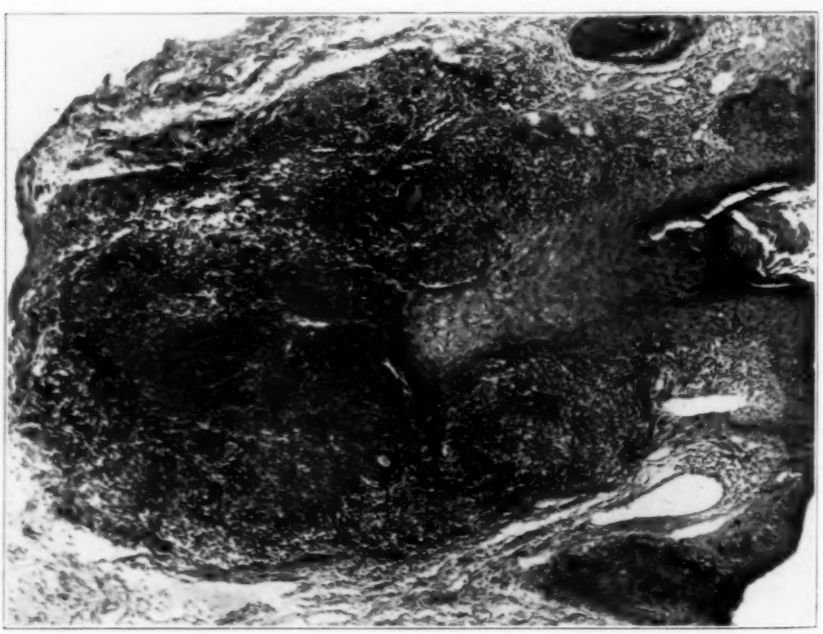

Fig. 3.—Low power photomicrograph showing a conglomerate tubercle involving the periphery of a hair follicle with several typical Langhans giant cells.

ment and involution (some a shorter and some a longer time). When they disappeared, they left oval or round depressed scars. However, this was not true of the lesions on the hands, which left only superficial flat scars and pigmentation without pitting. As many as 150 lesions were present on the face at one time.

HISTOLOGIC EXAMINATION

Two nodules were removed from the patient's face and submitted to Dr. Alexander Fraser, professor of pathologic histology at the New York University and Bellevue Hospital Medical College, for examination.

Dr. Fraser reported that "the epiderm showed atrophy in places and keratosis of the mouth of the follicles. The corium showed oedema and marked

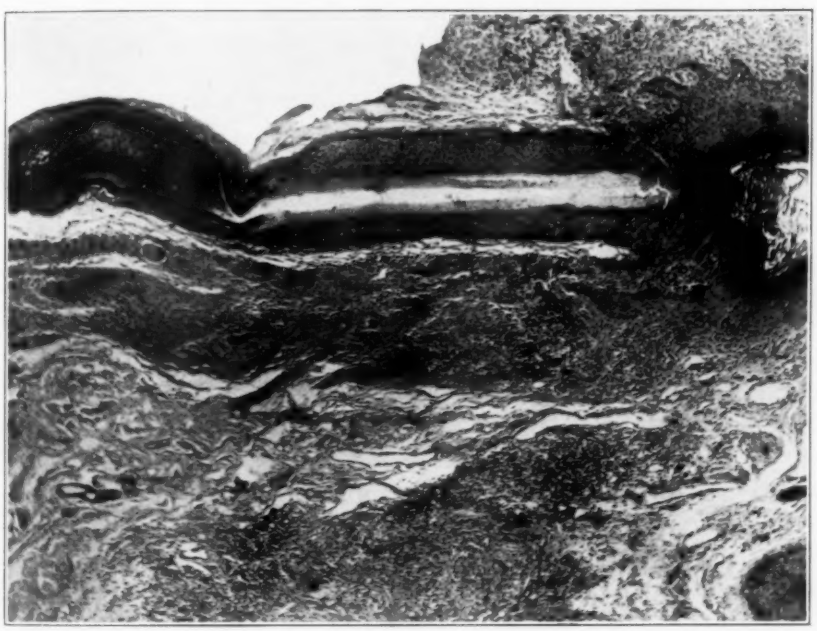

Fig. 4.—Low power photomicrograph showing a conglomerate tubercle following the course of a hair follicle with several Langhans giant cells.

dilatation of the blood capillaries, arterioles, venules, and lymph vessels. Around and encroaching upon the hair follicles, sweat glands, and here and there in the striated muscle, were masses of fused microscopic miliary tubercles composed of concentrically arranged epitheliod cells with few lymphocytes and, in places, giant cells. The giant cells were, for the most part, of the type seen in sarcoid—that is, with a lipoid 'foamy' appearance of the cytoplasm rather than that of caseation, though some of them did show caseation. There were also some cells of the Langhans type. The individual microscopic miliary tubercle did not show evidence of necrosis or any of the destructive characters usually seen in lupus vulgaris, but one large conglomerate mass of these tubercles did show typical caseous necrosis. The lesions slightly involved the epiderm in the line of the hair follicles but there was no inflammatory hyper-

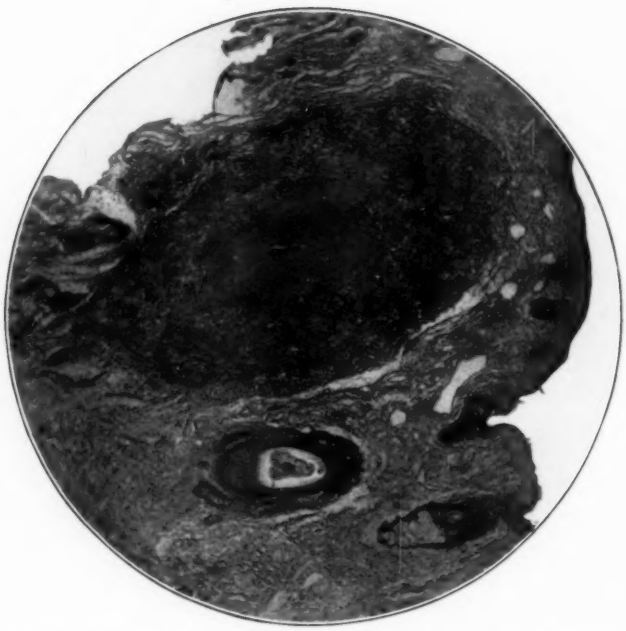

Fig. 5.—Low power photomicrograh: a conglomerate tubercle showing central caseous necrosis and numerous closely packed microscopic tubercles in which are several typical Langhans giant cells below and to the left.

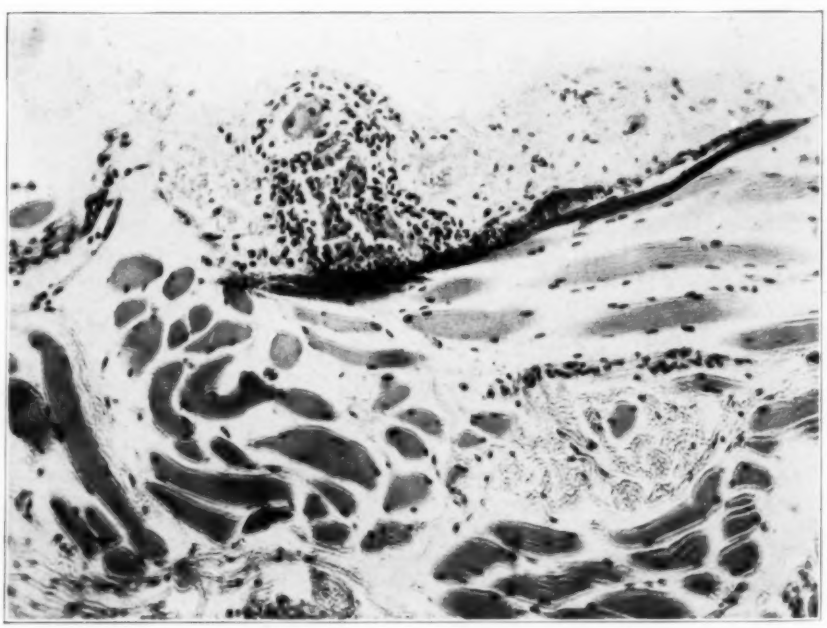

Fig. 6.—High power photomicrograph showing: (1) lesion arising from a thrombosed blood vessel in the striated muscle tissue; (2) several giant cells, and round cell infiltration; (3) degenerating muscle fiber at the upper part of the lesion.

plasia of the papillae or 'verrucous' formation seen in tuberculosis verrucosa cutis.

"Histological diagnosis: A mild or attenuated form of turberculosis of the sebaceous glands, hair follicles and sweat glands with acne."

BACTERIOLOGIC EXAMINATION

Approximately 100 specimens from excised nodules were stained and examined, but tubercle bacilli were not found. Cultures of material from a nodule which contained a minute amount of pus were negative for the tubercle bacilli, the only organism found being *Staphylococcus albus.* Smears made from the same material likewise gave negative results. A tuberculin skin test gave a slightly positive reaction.

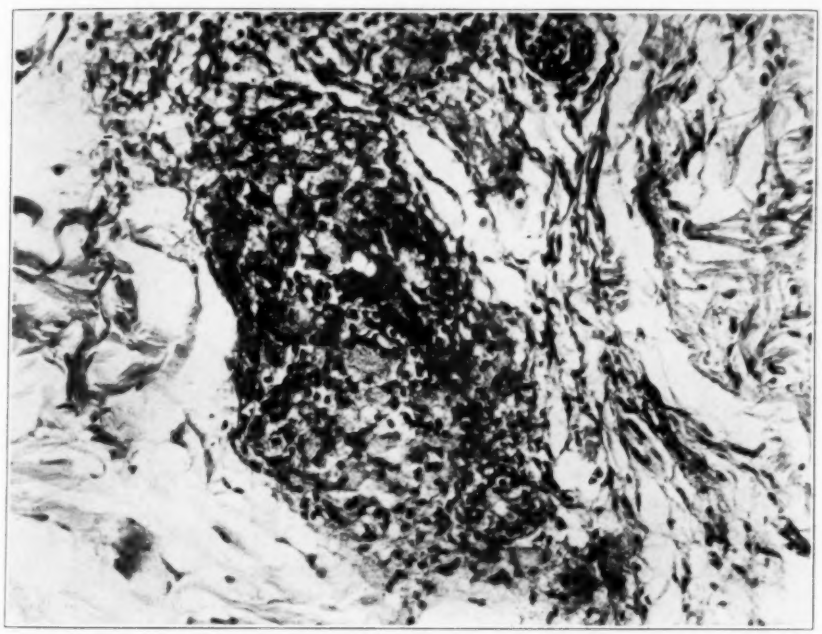

Fig. 7.—High power photomicrograph showing a tubercle in loose edematous tissue, with numerous giant cells of the sarcoid type.

ANIMAL INOCULATION

Three guinea-pigs and two rabbits were inoculated subcutaneously and intraperitoneally with material from excised nodules. They were kept under observation for over three months during which time all gained in weight and did not show any signs of tuberculosis. When killed at the end of the period, evidence of tuberculosis was not found in any organ on either macroscopic or microscopic examination.

HISTOLOGIC AND BACTERIOLOGIC EXAMINATIONS IN REPORTED CASES

Schamberg,[8] found the epidermis practically normal with the exception of an infiltration of elongated leukocytes in some sections and the

absence of epidermis at a site corresponding to the exit of a hair follicle which had undergone necrosis. In the corium there was a diffuse infiltration of round cells, with no particular grouping about blood vessels; plasma cells were absent, but mast cells were present in normal numbers. There was a distinct area of coagulation necrosis in the center of the cell mass. Scattered through the cell mass were numerous giant cells and epitheliod cells. It was evident that many of the giant cells originated from thrombosed blood vessels. There was a considerable increase in the number of blood vessels, and the existing capillaries in the corium were greatly distended and filled with red blood cells. The lymph spaces and vessels were enormously distended and there was a general edema of the tissues. The sweat glands, particularly the superficial glands, were decidedly changed; the lining cells had proliferated to such an extent as completely to occlude the lumen in some cases. Many glands were so disintegrated that they were almost unrecognizable.

Because some giant celllike bodies were seen so close to remnants of coils that they looked as if they had their origin in them, Schamberg was unable to determine whether the entire pathologic process had its origin in the sweat glands, or the condition of the glands was secondary to the main process elsewhere.

Pollitzer,[4] found a mass made up of round cells, epithelioid cells and giant cells at the junction of the subcutaneous tissue and the cutis. The giant cells were present in large numbers and were arranged in groups. The epithelium of the coils of the sweat glands was very much swollen, often entirely obliterating the lumen. He found that the hair follicles, which were numerous around the new growth, appeared to be normal, and that the infiltration did not extend to the follicles. Pollitzer regarded the giant cells as of sweat gland origin and the process as primarily a suppurative inflammation of these glands.

Barthelmy,[3] because of the presence of giant cells and epithelioid cells around the hair follicles, believed the process to be a special kind of perifolliculitis.

Crocker [1] stated that Galloway had examined a nodule from one of his cases and had found abundant giant cells with a general aspect of tuberculous structure, but that tubercule bacilli were not found; also that Pernet had examined a nodule from another of his cases and had found that the chief change had occurred about the sweat coils, which were disorganized by an inflammatory leukocytic infiltration, that some of the hair follicles were partially involved and that there was a perivascular infiltration. Tubercle bacilli were not found.

Oliver [10] found in the corium an infiltration consisting of small round cells, giant cells and epitheliod cells, with some polymorphonuclear leukocytes in the more superficial layers. The giant cells were definitely

of the Langhans type. In some places the infiltrating cells showed a tendency to be grouped in a manner suggesting a tuberculous arrangement, particularly about the sebaceous glands with the remains of their follicles and the sweat coils, the majority of which were destroyed. Definite signs of necrosis were not present. Outside the large central masses and in the deeper layers of the corium were many mast cells with some fewer plasma cells. There was a considerable dilatation of the capillaries and larger vessels. Tubercle bacilli were not found in any of the stained sections examined.

Ketron,[11] after examining a number of sections from excised papules, found three microscopic lesions, which he considered gave him the key to the point of origin of the pathologic process of acnitis. One of these lay just beneath the epidermis, another midway in the cutis and the third in the lower border of the cutis. They were round or oblong and consisted of a small group of epithelioid cells; about the periphery were scattered a few round cells, and in one section a giant cell was seen. These small infiltrations could be traced throughout their entire extent in serial sections and were not in any way connected with the sweat glands, but lay definitely along the course of small blood vessels. Two or more vascular branches could be traced into each nodule, and in one of these, red blood cells were seen lying free in the infiltrate. These branches before reaching the nodule became enveloped with a mantle of small round cells which was continuous with those surrounding the nodule. Ketron stated that the primary lesion of acnitis originated in the small blood vessels lying at various depths in the cutis. He believed that the varied results of other investigators could very well be explained by this assumption, as the concerned vessel may surround a hair follicle, or a sweat or sebaceous gland.

Stained sections examined for tubercle bacilli by Galloway and Pernet for Crocker,[1] Pollitzer,[5] Schamberg,[8] Oliver,[10] Ketron [11] and Schamberg and Harkins [12] all give negative results. Examination of smears taken from nodules in the cases of Pollitzer,[5] Schamberg,[8] Oliver,[10] Ketron [11] and Schamberg and Harkins [12] failed to show the presence of tubercle bacilli.

In the case reported by Schamberg and Harkins,[12] however, smears showed the presence of staphylococci and a gram-negative rod-shaped organism which, for convenience, they called *Bacillus X*. These observations were confirmed by another laboratory. A fragment of a nonulcerated nodule grown in a special anaerobic medium also yielded *Bacillus X*, in addition to other organisms. Injection of an incised nodule into the peritoneal cavity of two guinea-pigs produced, in the pig receiving the larger dose, a generalized pustulocrustaceous eruption, followed by ulceration, the pustules appearing on the twenty-second day. *Bacillus X* was recovered in cultures from these crustaceous lesions and from the

peritoneum and heart blood. Intraperitoneal and intravenous injection of a culture of *Bacillus X* failed to produce an eruption in guinea-pigs, although the organism was virulent and caused the death of the animals injected.

Schamberg and Harkins believed that the bacillus belonged to the colon group, but that it differed from the ordinary colon bacillus in its virulence and in certain cultural and biologic characteristics. They considered it significant that the inoculated animals did not show any signs of tuberculosis.

Oliver [10] inoculated three guinea-pigs subcutaneously with material from nodules. All three animals gained in weight during the three months they were under observation, and when they were killed at the end of this time there was not a sign of tuberculosis in any of the organs, visible either to the naked eye or on microscopic examination. Bacteriologic results in Ketron's [11] case were negative also, both in the animal inoculations and in the cultures made from removed nodules.

Tuberculin ocular and skin tests made by Schamberg [8] were negative. Oliver [10] made two von Pirquet tests on his patient. The first showed a negative result and the second, performed three weeks later, gave a positive result in twenty-four hours. Ketron [11] obtained a positive result from a skin test made on his patient.

COMMENT

Acne agminata (acnitis) is classified as one of the tuberculids, about whose etiology there has been considerable discussion. Several theories have been advanced to account for their causation: that these lesions are a reaction of the tissues to a tuberculotoxin derived from some antecedent glandular or other focus of tuberculosis; that they are due to the circulation in the blood of dead tubercle bacilli, or that they are caused by emboli of attenuated bacilli or bacilli of low virulence.

The general failure to find tubercle bacilli in stained sections, the failure to find tuberculous organisms in smears, the lack of success in producing tuberculosis in animal experimentations with material taken from these lesions and the frequent negative results in tuberculin skin tests tend to show that acne agminata, or acnitis, is not an example of true tuberculosis but that it may possibly be accounted for by the toxin theory. However, the histologic picture in all cases reported has been that either of a tuberculous granuloma or of an arrangement closely simulating it.

This is particularly true in the case I have reported. The histologic examination in this case showed, in one section, a typical conglomerate tubercle composed of numerous microscopic miliary epitheliod tubercles, the whole mass showing central caseation with the formation of giant cells, some of which were of the Langhans type. This type of histologic

arrangement is characteristic of the lesions caused by the tubercle bacillus. The size of the microscopic miliary tubercle probably represents the radius in which the toxins of the tubercle bacilli act; in other words, a group of tubercle bacilli growing at one focus liberates toxin which diffuses to the extent of the microscopic miliary tubercle which is the unit of all tuberculous lesions. A toxin, unless thus localized by the presence of bacilli, in all probability could not produce a lesion of this type.

Tubercle bacilli have been found in some of the other tuberculids. McLeod and Ormsby,[13] in 1913, reported the results of the histologic examination in two cases of acneiform tuberculids (papulonecrotic tuberculids) in one of which they found tubercle bacilli in one of seventy sections examined. In the same article they quote a report by L. Phillippson that he had found tubercle bacilli in a similar case and had produced tuberculosis in a rabbit by inoculation of material from this case. They also quote a report by Thiebierge and Ravaut that they had inoculated a guinea-pig with material from a case of erythema induratum, the pig developing tuberculosis and dying in twenty-four days. Pusey,[14] in his textbook on dermatology, states that Jacobi and Wolff had found tubercle bacilli in cases of lichen scrofulosum and, together with Pellizarri and Hausholter, had obtained positive results from inoculations in guinea-pigs.

Gougerot and Laroche[15] have reproduced experimentally lesions of cutaneous tuberculids on the plucked or shaved surface of healthy epidermis. In their guinea-pig experiments, with inoculation of virulent tubercle bacilli by simple epidermic friction, they did not obtain fewer than ninety-five papulotuberculids, three indurated erythemas, a dozen patches of "eczema scrofulosorum" and "bacillary epidermatitis approaching the reaction of parapsoriasis and lupus erythematosus." Some of the tuberculids, and the pus of two glands, were reinoculated into new guinea-pigs, and the inoculations proved positive. More or less numerous tubercle bacilli were found in preparations of the glands and spleen.

They state that the identity of human and experimental papulonecrotic tuberculids is complete, with the same clinical aspect and the same anatomic structure. The development was the same in all the animals, and except for differences in diameter and depth, all the

13. McLeod, J. H. H., and Ormsby, O. S.: Brit. J. Dermat. **13**:367 (Oct.) 1901.

14. Pusey, W. A.: The Principles and Practice of Dermatology, ed. 4, New York, D. Appleton & Co., 1924, p. 1168.

15. Gougerot, R., and Laroche, G.: Experimental Reproduction of Non-follicular Histologically Atypical Cutaneous Tuberculids, Arch. de med. exper. et d'anat. path. **20**:581, 1908.

lesions presented the same appearance. The authors, on the basis of detailed investigations in various directions, reached the conclusion that clinically, anatomically and bacteriologically there is complete identity between human and experimental papulonecrotic tuberculids. The experimental tuberculids contain only very scanty bacilli, the demonstration of the bacillus being exceptional. The same is true in human papulonecrotic tuberculids, in which the bacillus has been found only exceptionally and seems to be even more rare than in the experimental lesions. The inoculation of experimental papulonecrotic tuberculids into new guinea-pigs yielded inconstant positive results. In the case of the human lesion, positive inoculation was still much more unusual.

Rist and Rolland,[16] in a paper entitled "Étude sur la Re-infection Tuberculeuse," published in 1914, put forward a new hypothesis which seemed to explain a good many difficult points, particularly why tubercle bacilli were almost never found in tuberculid lesions. They studied experimentally the phenomena following the intradermic injection of human and bovine bacilli in guinea-pigs which had already been infected with similar organisms. In a number of animals they reproduced lesons of tuberculosis, which in many ways resembled the manifestations in tuberculids. They found that while after the primary inoculation with tubercle bacilli the sore developed slowly and took the chronic course of a tuberculous ulcer, with the usual resultant scar, that after reinoculation it developed quickly, lasted a comparatively short time and left little or no scar. A special point of difference was that while numerous bacilli were found in the lesion from the primary inoculation, they were extremely rare in the lesion from reinoculation. In many sections either they were absent or only a few were found twenty-four hours after reinoculation. Everything pointed to a rapid destruction of the bacilli introduced. Those which remained had lost their acidfast characters and appeared as microbic dust. They had lost their red color and were stained a brown-violet by the Ziehl stain.

Rist and Rolland concluded that the tuberculids were manifestations of allergy in subjects in whom there was a manifest or latent focus of tuberculosis; that the bacilli were destroyed in situ by antibodies, and that the tuberculids were caused by an endogenous reinoculation.

Sequeira[17] cites a case of erythema induratum which developed in a patient with a tuberculous ankle joint after the injection of a tubercle bacillary emulsion and the same thing occurring in another patient with

16. Rist, E., and Rolland, J.: Étude sur la re-infection tuberculeuse, Ann. de méd. **2**:13 (July) 1914.

17. Sequeira, J. A.: A New Conception of the Tuberculides, Brit. J. Dermat. **27**:371, 1915.

tuberculous glands. He also quotes Thiebierge and Gastinel, and Bartier and Lian, as reporting that they had produced erythema nodosum with injections of old tuberculin, and Schweninger and Buzzi as having produced lichen scrofulosorum with the same agent. Lesseliere confirmed these results and showed that the histology of the lesion after injection had the same character as that which occurred spontaneously.

I believe that acne arginata (acnitis), as well as many of the other so-called tuberculids, is a type of true tuberculosis, and that the theory of Rist and Rolland is the most sound explanation of the theory of tuberculid yet advanced.

In some of the cases of acne agminata reported, the patient was acutely ill either just before or at the time of the outbreak of the eruption. This illness probably coincided with the time of reinoculation or reinfection. Since most of the cases are first seen by the dermatologist several months after the onset of the disease, this condition may have been overlooked in many other cases.

The absence of tubercle bacilli in the lesions is explained by their early destruction by antibodies, and the differences in the character of the various histologic pictures may be explained by varying degrees of activity of the bacilli before being destroyed.

The name acne agminata appeals to me as being more descriptive of the clinical picture than does acnitis, and for this reason it has been used in this paper.

SUMMARY

A review of the literature of nineteen reported cases of acne agminata (acnitis), is presented with the report of a case of my own. The clinical, histologic and bacteriologic aspects of the cases have been studied. The clinical manifestations have been practically the same in all the cases; the histologic picture in all the cases has been that of an infectious granuloma, closely resembling the structure found in tuberculosis, while in my own case, caseation necrosis has been demonstrated as well; bacteriologic examinations have been negative in all cases, as have animal inoculations also. The various theories as to the causation of this disease, as well as of other tuberculids, have been discussed, and the theory of reinoculation in a subject with an allergy to tuberculosis has been accepted as the most sound.

CONCLUSIONS

1. Acne agminata is a true tuberculosis of the skin.
2. It is probably a manifestation of allergy in a person who has an active or latent focus of tuberculosis.
3. It is probably due to an endogenous reinoculation or reinfection.

853 Seventh Avenue.

CLINICAL OBSERVATIONS FROM THE CENTRAL HOSPITAL, BANGKOK, SIAM *

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NEW ORLEANS

Ten years' experience in Siam afforded an opportunity for observing many interesting cases, a few of which will be reported to illustrate the variety of the material and the extent to which natives will permit a disease to progress before applying for treatment. The greatest difficulty modern medicine has to contend with in the Far East is the reluctance of the native to seek scientific relief until he has exhausted every other means of treatment. By that time he is usually beyond the curative stage and thus it is difficult for modern practice to demonstrate its superiority over the native healer.

REPORT OF CASES

CASE 1.—*Papillary Adenomas of the Sweat Glands.*—A Siamese man, aged 47, applied to the clinic to have tumors removed. They had appeared first about eight years previously, as pinhead nodules. Sections showed them to be papillary adenomas of the sweat glands. Section 1 (fig. 2) was obtained from a growth of about seven years' duration, while section 2 (fig. 3) was from a nodule of only six months' growth. These growths are prone to undergo carcinomatous degeneration on account of the large amount of epithelium lining the tumor spaces. Free hemorrhage followed removal, unless considerable healthy tissue was included in the excision.

CASE 2.—*Amebic Dysentery.*—This case graphically illustrates the extent to which a native will permit a disease to progress before applying to the clinic for treatment. The photograph (fig. 4) was taken on the day of the patient's arrival.

A Siamese man, aged 23, insisted that he had never suffered from gastrointestinal disturbances. The feces were positive for *Entameba hystolitica.* The condition seen at admission manifested itself some three months previously as a small swelling in the groin. This had ruptured about four weeks before the patient appeared in the clinic. Death occurred a few days after admission to the hospital. Figure 5 illustrates the defect in the colon, which measured about 3½ inches (9 cm.). The entire colon was extensively ulcerated.

CASE 3.—*Endothelial Sarcoma of the Tongue.*—A Siamese man, aged about 50, a betel nut chewer, had suffered from the sarcomatous condition for about eight years. He appeared in the clinic with the tumor covered by half a cocoanut shell, which was suspended by a string around his head. The tongue and glands were removed. Extensive malignant growths of the tongue, cheeks and lips are common among betel nut chewers.

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*From the Department of Tropical Medicine, Tulane University of Louisiana.

Fig. 1 (case 1).—Papillary adenoma of the sweat glands.

Fig. 2 (case 1).—Papillary adenoma of the sweat glands; section from a nodule of seven years' growth.

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Fig. 3 (case 1).—Papillary adenoma of the sweat glands; section from a nodule of six months' growth.

Fig. 4 (case 2).—Amebic dysentery, the result of untreated perforation of the colon.

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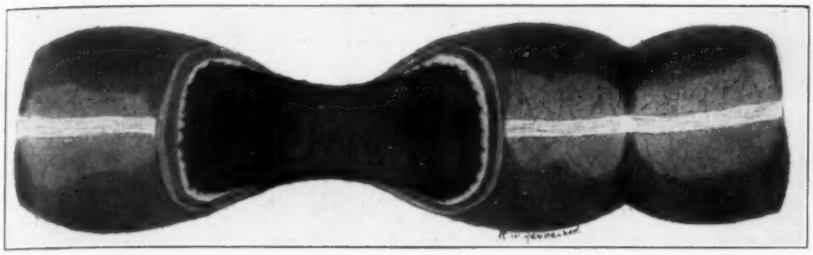

Fig. 5 (case 2).—Postmortem appearance of the defect in the colon.

Fig. 6 (case 3).—Endothelial sarcoma of the tongue.

Fig. 7 (case 3).—Betel nut carcinoma of the lips and cheek.

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Fig. 8 (case 5).—Untreated frambesia in the secondary stage.

Fig. 9 (case 6).—Gangosa.

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CASE 4.—*Carcinoma of the Lips and Cheek in a Betel Nut Chewer.*—The patient is shown in figure 7. Such patients will not submit to surgical treatment until they are almost incapacitated. Early removal would, in the majority of cases, result in permanent cure, since the tumor usually begins as a papilloma, and later becomes carcinomatous.

CASES 5 and 6.—*Frambesia and Gangosa.*—The patients are shown in figures 8 and 9. These two cases illustrate the early and very late manifestations of untreated yaws. Undoubtedly gangosa is a frambesial lesion. Antiframbesial treatment, combined later with plastic surgery, produces good results.

L.—PITYRIASIS ROSEA*

RICHARD S. WEISS, M.D.
CLINTON W. LANE, M.D.
AND
WINFRED A. SHOWMAN, M.D.
ST. LOUIS

Having had the opportunity to study a large series of cases of pityriasis rosea from the services of Drs. Engman and Mook at the Barnard Free Skin and Cancer Hospital, the Washington University Dispensary, the Barnes Hospital and the St. Louis Children's Hospital, it occurred to us that a detailed study of this series of 380 cases might add to the knowledge of the subject.

Speculation as to the exciting cause of the disease is not in order in a report of this character, and we shall therefore confine ourselves to a statement of the facts as we found them and to a report of instructive cases, some of which are included in this series and others from the private records of Drs. Engman and Mook.

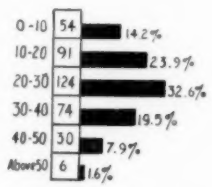

Fig. 1.—Age incidence of entire series of patients with pityriasis rosea (379 cases: age not stated in one case).

AGE

In our series of 380 cases, ninety-one patients were between the ages of 10 and 19, inclusive, and 124 between the ages of 20 and 29, inclusive; i. e., 215 or 56.6 per cent were between the ages of 10 and 29, inclusive. Our records also show that fifty-four patients, or 14.2 per cent, were below the age of 10, the youngest being 8 months. Above the age of 29 there were 110, or 28.9 per cent, the oldest being 61 years (fig. 1).

The greatest number of our patients were between the ages of 20 and 30, thus agreeing with the results of Towle and substantially with

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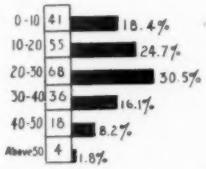
* Read at the Golden Anniversary Meeting of the American Dermatological Association, Philadelphia, May, 1926.

* Studies, observations and reports from the Dermatological Departments of the Barnard Free Skin and Cancer Hospital and the School of Medicine, Washington University, service of Drs. M. F. Engman and W. H. Mook.

many other observers. Highman and Rulison's series showed two-thirds between the ages of 20 and 40. One hundred and ninety-eight of our patients, or about one-half, were between these ages.

In order to determine whether any material difference could be found in the age incidence as observed at the Barnard Free Skin and Cancer Hospital and the Washington University Dispensary and Hospitals, the results were charted separately, and no material difference was found (figs. 2 and 3).



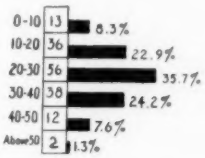


Fig. 2.—Age incidence in cases from the Washington University Dispensary and hospitals (*222* cases).

Fig. 3.—Age incidence in cases from the Barnard Free Skin and Cancer Hospital (157 cases).

SEX

In our series, 135 patients were male and 245 female, 35 per cent and 64.5 per cent, respectively. In order to determine whether this rate varied in the different age groups, the ratio was figured in the groups 5 to 19, and 20 to 39 inclusive. In the younger group, there were forty-two males and eighty-five females, or 33.1 per cent and 66.9 per cent, respectively; in the older group seventy males and 128 females, or 35.6 per cent and 64.4 per cent, respectively. It will thus be seen that there was no material difference between the age groups themselves or between each age group and the total of all ages (table 1).

Sex Incidence in Entire Series of Patients with Pityriasis Rosea Compared with Sex Incidence in Age Groups 5 to 20 and 20 to 40

	Male		Female	
	Number	Per Cent	Number	Per Cent
Total, all ages	135	35.5	245	64.5
Age 5 to 20	42	33.1	85	66.9
Age 20 to 40	70	35.6	128	64.4

Our results of two females to one male case are in agreement with Towle, Thieberge, Moingeard and Adamson, and are fairly close to the experience of Highman and Rulison. Szaboky's experience was exactly the opposite, and Graham Little, Crocker and Cunningham found that their cases occurred with equal frequency in both sexes.

RACE

In our series, 282 persons, or 75.8 per cent, were white and ninety or 24.2 per cent were colored; in eight, the race was not stated.

SEASONAL INCIDENCE

In this series the least number of cases occurred in June and July and the greatest number in March, April and May. There was a secondary peak in the month of September and again in December (fig. 4). It seems clear that in this series of cases, the incidence generally was highest in the spring and fall months.

It occurred to us that it would be interesting to figure the seasonal incidence in a much larger series of cases. We have, therefore, taken the series reported by Owens, Towle, Highman and Rulison and Fox and added them to our own. This gave us 753 cases which have been plotted and are shown in the upper curve of the chart. In this large series, the greatest number of cases occurred in the month of January, but the incidence was high from September to May, inclusive, there being a slight drop in the month of April. There was a decided drop in June,

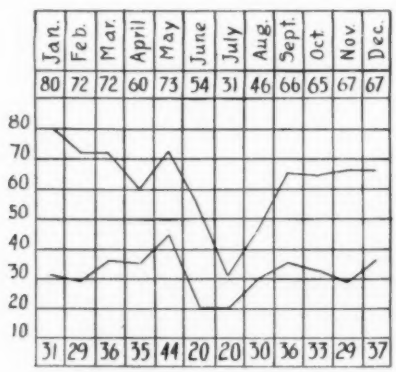


Fig. 4.—Seasonal incidence; lower curve indicates our series alone of 380 cases; upper curve, combined series of 753 cases, including figures of H. Fox, Highman and Rulison, Owens, Towle and ours.

and the fewest cases occurred in July. If the figures on this series of 753 cases can be taken as a reliable index of the seasonal incidence of pityriasis rosea, it must be admitted that the disease is most frequently seen during the fall, winter and spring months, with the peak in the month of January; it is infrequent in the months of June and August and apparently rare in the month of July. The curves of the two series show a rough correspondence.

That there have been varying opinions on the seasonal incidence is well known. Gibert, for instance, believed that the disease was most frequent in the hot months and Graham Little in the cold months; whereas Szaboky, Fiacco and Crocker were of the opinion that there was little or no seasonal variation. Most of the cases in Towles' series occurred during the autumn, but in Bazin's experience most of the cases

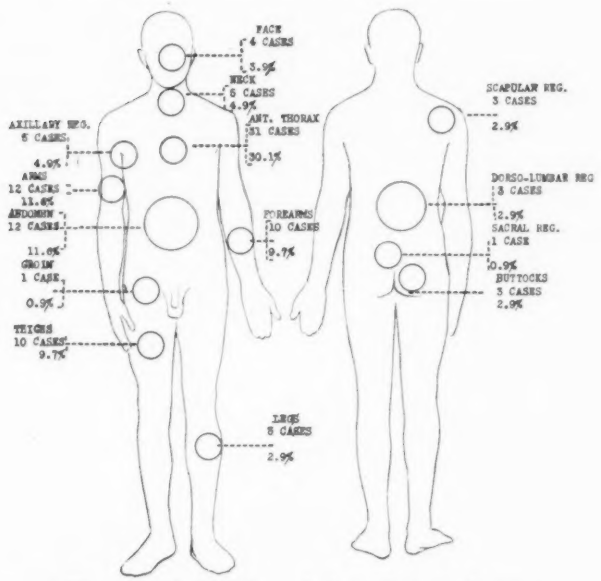


Fig. 5.—Distribution of the primary plaque.

Fig. 6.—Primary patch of pityriasis rosea on the face.

occurred during the spring. The Highman-Rulison-Fox series showed the cases to be most frequent during the four winter months from December to March, with the peak in February and the fewest cases in July.

PRIMARY PATCH

In only 103 cases, or 27.11 per cent, of our series was a primary patch found. It is possible that this lesion existed in many more but

was overlooked in the hurry of treating a large number of dispensary patients, or was concealed by dermatitis from various irritating applications, which this class of patients is so prone to use.

Previously published statistics vary widely. Towle, for instance, reports the incidence of this lesion at 12 per cent, Owen at 27 per cent, Montgomery at 54 per cent and Highman and Rulison at 94 per cent.

The study of the location of the primary patch was rather interesting. Thirty-one were found on the skin of the anterior thoracic wall, or 30.1 per cent; of these 31 cases, 14 were observed on the female breast. The primary patch was found on the face in 4 cases; in the axillary region in 5 cases; on the arms in 12 cases; on the forearms in 10 cases; on the dorsal and lumbar regions in 3 cases on the sacral region in 1

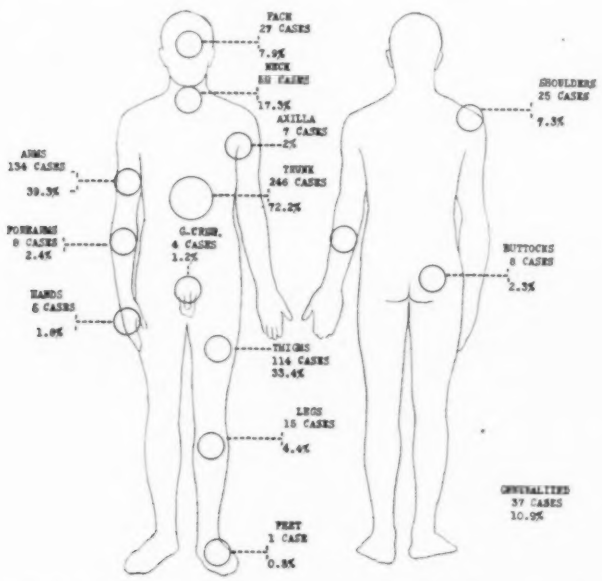


Fig. 7.—Relative distribution of the eruption in 341 cases of this series; thirty-nine cases were discarded because the distribution was not stated.

case; on the scapular region in 3 cases; on the buttocks in 3 cases; on the thighs in 10 cases; on the legs in 3 cases, and in the groin in 1 case (fig. 5).

INCUBATION PERIOD

In only forty-five cases of our series was sufficient data found in the histories to permit us to estimate the "secondary incubation" period; i. e., the period between the appearance of the primary patch and the appearance of the eruption. In 18 of these 45 cases, or 40 per cent, this period was found to be 4 days or less. It was 5 days in 4 cases, 6 days in 2 cases, 7 days in 7 cases, 8 days in 2 cases, 9 days in 1 case, 10 days in 2 cases, 11 days in 1 case, 13 days in 1 case, 14 days in 3 cases, 15 days

in 1 case, 30 days in 2 cases and 47 days in 1 case. These periods, of course, are merely approximations obtained from the histories as given by patients of the clinic class, who are notoriously unreliable.

TYPE OF ERUPTION

The type of eruption was not stated in forty-nine cases of this series. In the remaining 331 cases, 252 were of the typical "macular" or plaque type as we prefer to call it. In twenty-six cases the papular type of lesions predominated; in forty-four cases the eruption was described as plaques and papular, and in only nine cases was there a predominance of the circinate lesions. Two cases in the series showed vesicle formation.

DISTRIBUTION

In the study of the distribution of the eruption, thirty-nine cases of this series were discarded because the distribution was not stated. In the remaining 341 cases, the eruption was found on the trunk in 264 patients, or 72.2 per cent. Lesions were found on other locations as follows: 27 on the face, 59 on the neck, 25 on the shoulders, 134 on the arms, 8 on the forearms, 6 on the hands, 7 in the axilla, 4 in the genito-crural region, 8 on the buttocks, 114 on the thighs, 15 on the legs and 1 on the sole. In 37 of the cases the eruption was so profuse as to be called generalized (fig. 7).

It seems clear that almost any part of the skin may be involved in the eruptive phenomena of pityriasis rosea, although it must be admitted that the trunk is the site of election. The disease has been reported on the scalp by Kumer (case 4, reported here, should be noted also), on the eyelids by Szaboky and on the penis by Graham Little and by Howard Fox. A peculiar limitation of the eruption to certain areas is also noted. It may be distributed unilaterally as shown by Szaboky, Moingeard, Graham Little and Klauder. It may be localized to the axilla or groin as shown by the interesting study of George Henry Fox in 1912. These localized cases in the opinion of Klauder belong to the pityriasis circiné et marginé type of Vidal.

That the disease not infrequently occurs on the face and neck is shown in our series, and Klauder's figures led him to make the statement that the disease is not rare on the neck but is rare on the face. A number of cases of this localization have been presented before various dermatologic societies.

CASE 1.—A colored girl, aged 15, appeared at the clinic on Sept. 12, 1916, with the history of having had an eruption for the previous three weeks. It began on the face, then appeared on the neck and trunk. The eruption was the typical macular and plaque type of pityriasis rosea with many lesions on the face and neck. Itching was moderate. A primary patch was not found. On mild local treatment the lesions disappeared in two weeks (fig. 8).

Case 2.—A white girl, aged 6, entered the clinic on May 9, 1924, with a generalized eruption of two weeks' duration. The eruption was distributed on the trunk and limbs and on the neck and face. It consisted of the typical plaques with many papules. The primary plaque was on the left arm near the shoulder. The patient was not seen again until May 26, when the eruption had almost disappeared. The treatment used was calamine lotion.

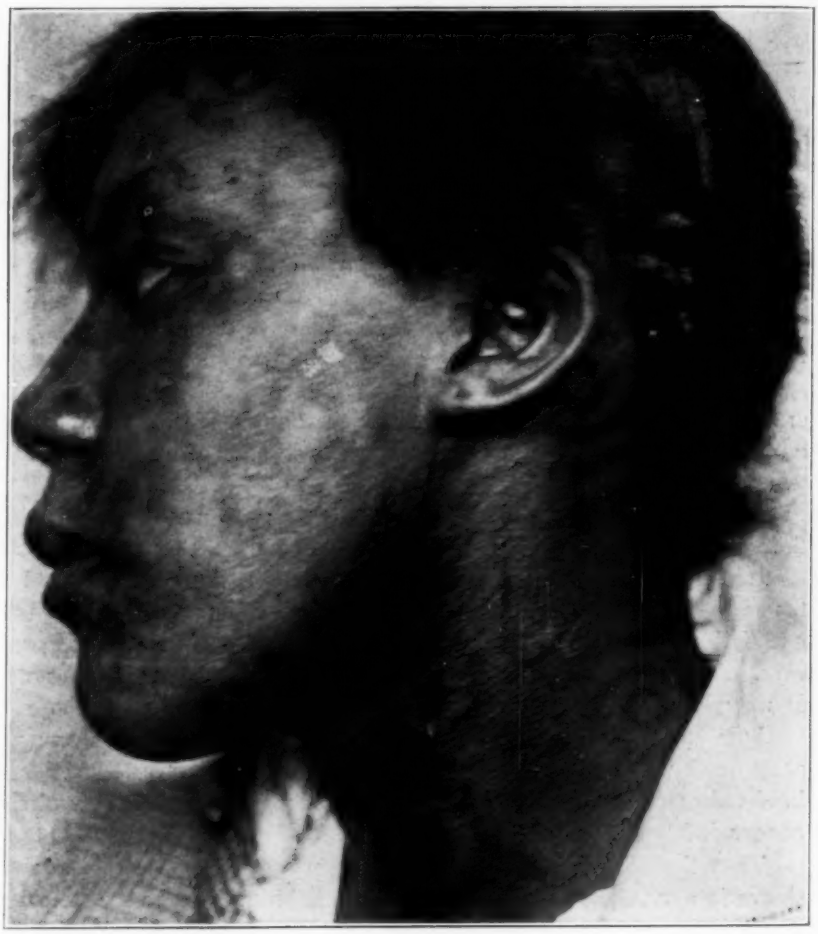


Fig. 8.—Eruption on the face and neck.

Case 3.—A colored boy, aged 10, was seen on Aug. 29, 1924, with a generalized eruption of one week's duration. The eruption consisted of slightly scaly papules and oval and circular plaques. The lesions were thickest on the trunk, neck and face. Both papules and plaques were found on the face. After treatment with mild lotions, the eruption had entirely disappeared by Oct. 4, 1924 (see also case 4).

ITCHING

The question of the occurrence of itching was raised by Highman and Rulison in 1923. They stated that itching was often severe, in contrast to the prevailing impression that the malady is not characterized by itching. In our series, itching was noted in 102 cases, or 26.8 per

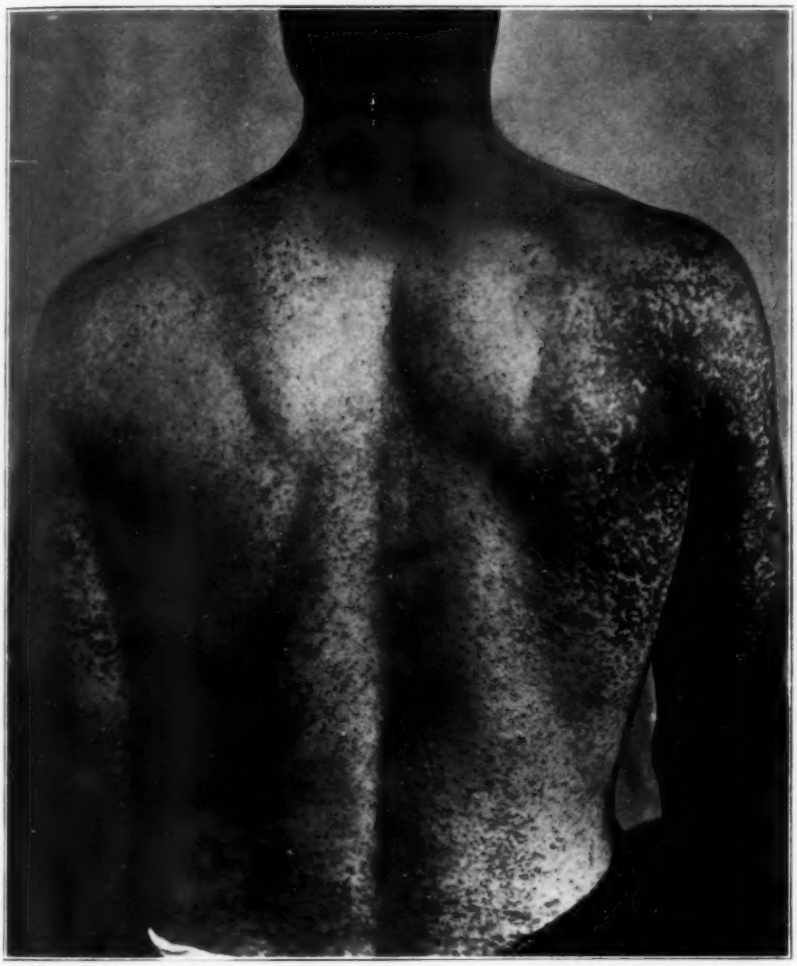


Fig. 9.—Distribution extremely profuse on the trunk and limbs with many papular lesions.

cent, and in forty-eight of these it was severe and in fifty-four moderate. It may have been present in many of the others, but there were no notes as to the presence or absence of this symptom in over two thirds of the histories. It should be considered, we believe, a feature of the disease.

CLINICAL TYPES

The original description of pityriasis rosea by Gibert in 1860 apparently included but a single type, the so-called macular type. In 1862, Vidal described a type of the disease under the name of pityriasis circiné et marginé, which he regarded as distinct from pityriasis rosea, the

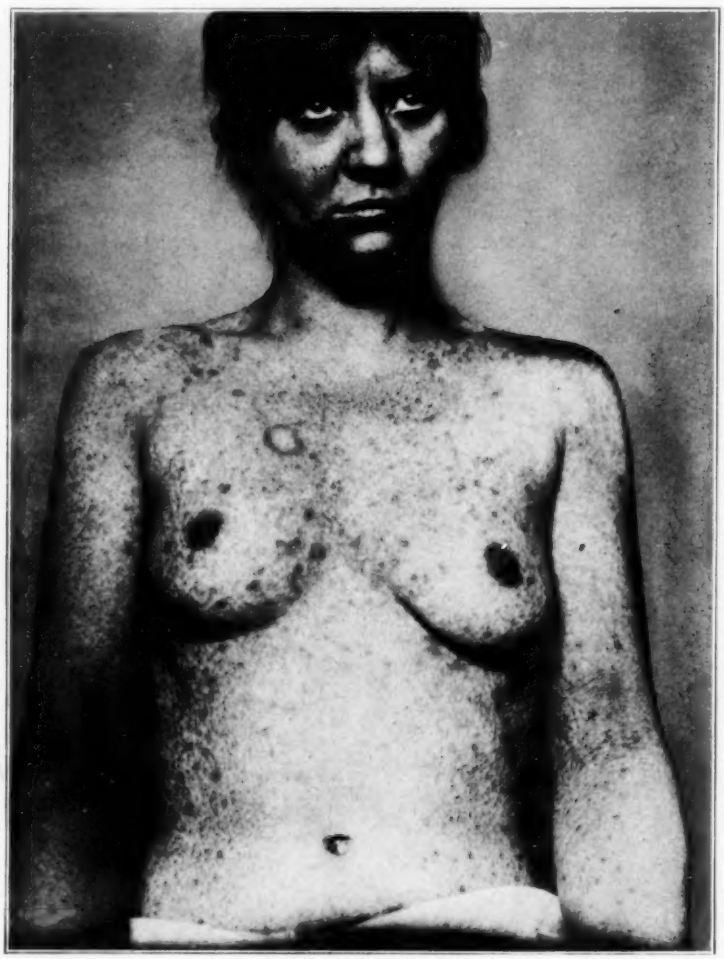


Fig. 10.—Wide distribution with numerous papules; primary patch above right breast.

most impressive differential feature of which was its long duration, about six months. To this type probably belong the genitocrural and axillary varieties described by George Henry Fox. This type has been generally accepted as a variety of pityriasis rosea. The first American

description of the disease was given by Duhring, whose cases seem to have fallen into the maculata et circinata class, but even he at that early date, 1880, seems to have recognized that papules were a feature of the disease. Since that time, this papular variety has been accepted as a distinct type, and, moreover, it has been recognized that in many of the other types papules are a feature of the efflorescence. That vesicles are also found in some cases is evident, as shown for instance by the reports

Fig. 11.—Vesicular lesions on the palms.

of Graham Little, Colcott Fox and especially Wile. Another type called pityriasis rosea gigantea has been described by Darier and confirmed by the reports of Pringle and Klauder.

It will thus be seen that the conception of pityriasis rosea has been changing, until today a disease which is somewhat multiform in its clinical expression is apparently seen in it. Klauder in his classification of the disease gives at least nine distinct varieties.

PALMAR AND PLANTAR LESIONS

That the palms and soles may be involved in the eruption has been shown by Stowers, Moingeard, Colcott Fox, Parkhurst, Klauder and others. Six patients in our series had the eruption on the hands, and one on the soles.

CASE 4.—In February, 1926, a physician, aged 54, presented himself with an eruption on the trunk. It consisted of circular and oval plaques from 0.5 to 1 cm. in diameter with slightly scaly centers, and was found on the chest and upper part of the abdomen. In three or four days the eruption had spread until it had covered the entire body, including the face, neck, trunk and limbs. Many of the lesions were small papules, slightly scaly. The face was thickly set with these papules, and on the scalp were at least a dozen. On the palms and soles were thickly studded, deep-seated vesicles, about 2 to 4 mm. in diameter, resembling a pompholyx eruption. Itching over the entire body could be described only as agonizing. This patient had been seen and treated by Hardaway twenty-five years previously for a typical and mild attack of pityriasis rosea. It was two months before all evidence of the disease had disappeared under soothing local applications and sedatives.

Fig. 12.—Vesicular lesions on the palm, and macular lesion on the forearm.

CASE 5.—A white girl, aged 13, seen on Aug. 12, 1919, gave a history of the eruption which had begun three weeks previously as little blisters between the toes, which spread over the soles and then appeared on the palms, fingers and backs of the hands. The lesions were large and small vesicles on inflamed bases. Scattered over the arms, forearms, legs, and thighs were oval and circinate plaques up to 3 cm. in diameter, with erythematous borders and fawn colored centers with branny scaling. When seen again on August 26, the lesions on the limbs were fading, and the palms and soles were exfoliating. There were still a few vesicles on the right palm. The patient appeared again on October 5, with a vesicular dermatitis of the palms and soles. Scrapings were examined at this time for fungi, and none was found.

CASE 6.—A white man, aged 42, who had a generalized eruption of weeks' duration, presented himself on May 21, 1906. He claimed to have had the same eruption twenty years previously.

Examination revealed a typical generalized pityriasis rosea over the entire surface of the body. The lesions on the trunk had coalesced to form large plaques. He complained of a burning or scalding sensation on the legs, where the lesions were very red. On the palms and soles were numerous translucent vesicles, small and firm, a few were brownish. Many small, scaly papules were

scattered over the dorsal surfaces of the hands. One week later, after treatment with soothing lotions, great improvement was noted. On June 4, the lesions on the trunk and limbs had disappeared entirely. The palms and soles were irritated, but the vesicles had dried up into yellowish crusts. One week later, the palms and soles were desquamating. Culture from a vesicle on the foot yielded only *Staphylococcus aureus*.

PITYRIASIS ROSEA AND EPIDERMOPHYTOSIS

In connection with the palmar and plantar eruptions of pityriasis rosea, it may be stated here that there is no reason why a patient with the disease may not have a concomitant epidermophyton infection. It is difficult to determine whether vesicular eruptions on the palms and soles in a patient with pityriasis rosea are a part of the pityriasis rosea erup-

Fig. 13.—Desquamation following vesicular lesions on the feet and simulating epidermophytosis.

tion or a fungus infection. If the palmar and plantar eruption disappears at the same time that the typical efflorescence does and under indifferent or nonspecific treatment, one is presumably justified in regarding the eruption as a manifestation of pityriasis rosea.

The study of George Henry Fox has shown the confusion which may exist in the differentiation of "eczema marginatum," seborrheic dermatitis and pityriasis rosea of the axilla and genitocrural region.

Case 7.—A white man was treated for a dermatitis of the legs on May 24, 1920. On June 8, he appeared with a thickly distributed macular type of pityriasis rosea on the trunk and in the genitocrural region—a typical phytosis.

CASE 8.—A white youth, aged 17, with typical pityriasis rosea on the trunk and thighs and genitocrural phytosis, was seen on April 7, 1920. The pityriasis rosea had disappeared by May 8, but it was not until June 3, that the fungus infection was controlled.

VESICULAR PITYRIASIS ROSEA

Wile has called attention to the vesicular type of pityriasis rosea. Unna's previous histopathologic studies had shown the presence of

Fig. 14.—Plaques on the backs of the hands.

microscopic subcorneal vesicles and it seems apparent that if this process goes to an extreme microscopic vesicles should at times make their appearance. Foerster has noted especially the appearance of vesicular types in infants and children.

CASE 9.—A white woman, aged 26, was first seen on Nov. 28, 1924, with a generalized vesicular eruption having almost the appearance of chickenpox, yet not characteristic of that disease. The eruption was watched from day to day and on December 5 it gave a typical appearance of pityriasis rosea. When it first appeared it was papular and vesicular and scattered over the trunk and neck. The patient did not feel bad; there was no headache or other subjective symptoms. The first crop of lesions spreads out into scaling macules and the whole appearance when last seen was that of a typical pityriasis rosea.

CASE 10.—A white woman, aged 26, a trained nurse by occupation, was first seen on Feb. 20, 1926, at the St. Louis Isolation Hospital, where she was suspected of having acquired chickenpox. She presented an eruption of plaques and papules on the neck, the upper anterior thorax and the breasts. Many of the papules were capped by a distinct vesicle 2 or 3 mm. in diameter, containing a minute drop of serum. The plaques were 0.5 to 1.5 cm. in diameter and salmon red. The papules were from 3 to 5 mm. in size, some follicular and

Fig. 15.—Scattered vesicular lesions on the neck and chest with remote resemblance to chickenpox.

some topped with a fine scale instead of a vesicle. On the lateral surface of the left breast was a large typical scaly plaque 3.5 cm. in diameter, which was evidently the mother patch. Itching was mild.

By February 24 the eruption had spread into the axillae and downward onto the abdomen. On February 26 there were many new lesions on the trunk and neck of the papular and plaque type, and the vesicular lesions had dried up leaving a small scale. On March 6 the eruption was pruritic and scaly. Many of the lesions were well raised above the skin level and appeared hivelike. When last seen on April 9, the patient still had a few slightly scaly plaques on the arms and shoulders. The only treatment used was calamine lotion (fig. 15).

SECOND ATTACK

Pityriasis rosea in the vast majority of cases seems to confer immunity to a second attack, yet a second attack does sometimes occur. Such cases have been reported by Dwyer, Whitfield, Towle, Razen and others.

CASE 11.—A white woman was seen first on March 12, 1919, with a typical eruption of pityriasis rosea on the arms and thighs. This had practically disappeared by March 18. The patient remained entirely well until November 20, when she again appeared with another attack which had started on the neck and spread all over the body; on November 25 it appeared on the face. The eruption was of the macular type and became extremely profuse and confluent. There was marked improvement by December 8 and patient did not return after this date.

CASE 12.—A white man, aged 37, was seen on April 24, 1911, with a typical eruption of pityriasis rosea which healed entirely. He appeared again on Sept. 20, 1916, with another typical attack, macular type, with the primary patch on the left ankle.

CASE 13.—A white woman, aged 23, was treated for pityriasis rosea in December, 1915. She made a complete recovery and did not have a sign of the eruption again. The patient reappeared on June 15, 1917, with another attack involving the whole body, including the neck and chin. The eruption was macular in type with many fine papules, some follicular.

CASE 14.—A white woman, aged 36, was seen on Sept. 13, 1910, with the typical macular type of pityriasis rosea. Under mild local treatment the lesions disappeared. On Sept. 20, 1911, she again appeared with another typical attack of the macular type.

CASE 15.—A white woman, aged 20, was seen on June 22, 1914, with a typical attack of the macular and circinate type, with a primary patch on the shoulder. This had completely involuted by July 17. She appeared on December 22, with another typical attack, with the eruption on the chest, abdomen and thighs, and made a complete recovery in two weeks.

PERSISTENT RELAPSING OR RECURRENT ERUPTIONS

It seems likely that the eruption of pityriasis rosea may persist for several months, as seemingly proved by a number of reports of cases by Montgomery, Phillips and others. The diagnosis of some of the cases may, of course, be questioned, the most obvious alternative diagnoses being seborrheic dermatitis or the disseminated plaque type of parapsoriasis.

Allen claimed to have seen the disease recur seven times in one patient. Sherwell saw the disease in the same patient at two successive pregnancies. Szaboky saw a case in which the eruption disappeared in six weeks, then recurred a few days later to last another five weeks. Graham Little reported a case in a boy in which the disease lasted five weeks, followed by a month's freedom and then an acute recurrence lasting five weeks.

CASE 16.—A white woman, aged 39, was seen on Oct. 13, 1915, with a typical macular type of pityriasis rosea on the neck, shoulders and trunk. There was a small primary patch under the chin. When seen on November 1 the eruption had also appeared on the forehead, and urticaria had appeared on the body, in addition to the pityriasis rosea lesions. It was noted that on November 17 the eruption looked like parapsoriasis en plaque, but by December 7 the eruption had entirely disappeared.

CASE 17.—A white woman, aged 20, was seen on June 17, 1918, with a typical macular type pityriasis rosea of four weeks' duration scattered over the trunk. She was seen again on November 23 when a note was made that she had a relapse. She reappeared on Jan. 3, 1921, stating that her eruption had never entirely healed but seemed to come and go. At this date she presented several old-looking mother spots, one on the chest, one on the back and one on the arm.

INFECTION

That time will disclose a parasitic factor is scarcely to be doubted, Stelwagen says. Support is lent to this theory of the etiology by the frequently quoted cases reported by Zeisler, Fordyce, G. H. Fox, Leistler, Crocker, Graham Little and C. J. White.

CASES 18 and 19.—A colored girl, aged 9, was seen at the Washington University Dispensary with a mild plaque type of pityriasis rosea on the chest and back, and a primary patch in the left axilla. Her small brother was said to have the same disease, and when he was examined a plaque type of pityriasis rosea was found on the trunk, with the mother patch in the right inguinal region.

CASES 20 and 21.—A white woman, aged 31, was seen on Sept. 13, 1920, with a typical macular type pityriasis rosea on the trunk, the primary patch being on the abdomen. She claimed to have had the eruption for the last three weeks. Her son, aged 14, developed an eruption two weeks after she did and presented a profuse papular type of pityriasis rosea on the trunk with a primary patch on the left breast.

SUMMARY

A critical study of a series of 380 cases of pityriasis rosea is presented.

The age incidence of the disease was highest between 10 and 30, 56.6 per cent being in this age group.

The disease occurred most frequently in the female sex in the ratio of almost two to one.

The seasonal incidence was highest, generally speaking, in the spring and fall months. In a much larger series of cases taken from the literature and added to this series, the peak occurred in the month of January, but the incidence was high during the months of September to May inclusive. The fewest cases occurred in the months of June, July and August, the minimum number being in July.

The incidence of the primary patch in this series was only 27.11 per cent but it is believed that this figure is too low.

The location of the primary patch was most frequent on the skin of the anterior thoracic wall (30.1 per cent).

Data for the accurate estimation of the "secondary incubation period" were too inaccurate to arrive at even an approximation.

The classic macular or plaque type was observed in 76.1 per cent of the cases. The papular type occurred in 7.9 per cent of the cases; the mixed papule and plaque type in 13.1 per cent and the circinate type in 2.7 per cent. It should be understood that these are not pure types but only express predominance of lesions.

The eruption occurred predominantly on the trunk (72.2 per cent). It was found in other locations in the following order of frequency: arms 39.3 per cent, thighs 33.4 per cent, neck 17.3 per cent, face 7.9 per cent, shoulders 7.3 per cent, legs 4.4 per cent, forearms 2.3 per cent, buttocks 2.3 per cent, axillae 2.1 per cent, hands 1.8 per cent, genitocrural region 1.2 per cent and feet 3 per cent.

Itching was noted as a feature of the disease in 26.8 per cent of the cases.

Cases are reported featuring lesions on the face, neck, palms, soles and scalp; concomitance of epidermophytosis and pityriasis rosea; vesicular eruptions; second attacks of the disease; persistent relapsing and recurrent eruptions, and apparent cases of infection.

DISCUSSION

DR. LUDWIG WEISS, New York: When discussing a paper on pityriasis rosea one feels a sensation of an inferiority complex creeping over him in regard to mentioning something that has not been said before. A disease which otherwise does not produce much discomfort to the patient looms up as the great unknown, in the solution of which many eminent dermatologists have tried their skill and learning. George Henry Fox contributed a valuable paper, "A Broader View on Pityriasis Rosea," in 1912, in which he discussed my contribution of 1903 on this disease. While recognizing the merits of Gibert's work, he made a well directed attack against his early and incomplete description of the disease, and ended with the remark, "Gibert probably knew less about pityriasis rosea than you or I." Gibert described only the macular lesions and never the annular variety which appears in almost every instance.

In this connection I would like to mention as a historical justice a contribution of the late Dr. Louis Duhring. In 1880, at the fourth session of the American Dermatological Association, independently and without knowledge of the researches of others, he read a paper on what is now called pityriasis rosea, under the title "Pityriasis maculata et circinnata." But the path of pityriasis rosea was destined to be a troubled one, particularly when Hebra came and said that what is called pityriasis rosea is only a disseminated form of body ringworm—an untenable observation as is now known.

I think pityriasis rosea is an endogenous disease of internal origin, of seasonal occurrence. Its rare recurrence, the primary lesion, the spontaneous involution and the observed and sometimes unobserved systemic disturbances, in the present state of knowledge, give justification for looking on pityriasis rosea as an erythematous disease of internal origin.

Dr. Erwin Paul Zeisler, Chicago: I have had pityriasis rosea twice—first in 1919, when I was traveling in Denver, and a physician there suspected syphilis. The condition cleared up on my return to Chicago. Seven years later I had a typical attack of short duration. I would like to know whether Dr. Weiss found any history of epidemiology or of familial occurrence in his series.

Dr. John E. Lane, New Haven, Conn.: Are the papular cases of much longer duration than the others?

Dr. Robert Hill Davis, St. Louis, Mo.: I have noted an increase in the papular cases, and also in the itching cases. There apparently is an epidemic of the itching papular cases, and some of the itching is severe. It produces a great deal of discomfort, and the patients do not recover quickly. I have found that some of the stubborn cases can be cleared up promptly by means of roentgenotherapy.

Dr. Charles M. Williams, New York: I was much interested in the case with lesions of the hands and feet. The eruption as shown was typical of tinea, and pityriasis-rosea-like lesions are one of the accepted form of trichophytide. In these cases the primary lesions on the feet and the secondary lesions on the body usually disappear together; but in the case reported the pityriasis rosea came first so the coincidence is probably accidental. I do not recall any case of trichophytide appearing before the primary infection had become severe.

Dr. Walter J. Highman, New York: I was greatly interested in Dr. Weiss' paper, partly because of his own cases, and partly because of his reference to the work of Dr. Rulison and myself.

I should like to ask what his impressions were with reference to the probable causation of the disease, whether he thinks it is likely to be due to some internal factor or whether he thinks the herald spot is the true primary lesion, and if so, whether the parasite causing the disease is disseminated through the circulation, or is a trichophyton.

I should also like to know whether Dr. Weiss recalls the discussion that took place when our paper was originally presented. Dr. Hazen said that in most of the cases in Washington he found tonsillar infections. That was at the time of the condemnation of the tonsils for everything.

I should also like to know whether he finds that the total incidence of itching, both severe and moderate, is greater than was originally reported in the American literature. I have watched these things since our paper of a few years ago, and I find that frequently there is persistent itching. I have watched the tonsils and have rarely found worse ones in persons with pityriasis rosea than in those without it. I should like to have these matters cleared up if possible, because they are of considerable importance.

Dr. Joseph V. Klauder, Philadelphia: What have been Dr. Weiss' observations relative to localized eruptions of pityriasis rosea? I have seen such eruptions appearing unilateral as well as bilateral, and the duration is much longer than the usual eruption of the disease. I think one can feel certain of the existence of papular and vesicular lesions of pityriasis rosea.

Dr. Ernest L. McEwen, Chicago: Are there any data showing whether the cases that were itching were cases of self medication, or whether the patients had received treatment of some sort.

DR. RICHARD L. SUTTON, Kansas City, Mo.: I am especially interested in the probable etiologic factor. I wonder if it is possible that the lesion might be primary in the fullest sense of the word, and that the generalized eruption which is widely disseminated, and roughly symmetrical, might not be along the order of the trichophytides.

DR. RICHARD S. WEISS, St. Louis: The paper was long and I could not read all of it.

Replying to Dr. Zeisler, I have observed one case of a second attack. We referred to the cases reported by others, and report two new cases of second attacks.

Replying to Dr. Lane as to the duration of the vesicular eruptions, it is my impression that they do last longer.

Answering one of Dr. Highman's questions here, itching seems to be observed more frequently since the appearance of his paper.

Dr. Williams asked if the palmar case was not a case of trichophytide. It is possible, but I do not believe that it was. The paper includes a report of another similar case, which I did not have time to read.

Dr. Highman gave me a big task in asking so many questions. He wants to know the probable cause. I would also like to know it. I have the impression that it is of internal origin. Regarding the relationship of the herald spot I cannot make any statement. I hope Dr. Highman will undertake some experiments for the enlightenment of dermatologists in this respect. The eruption does sometimes impress one as a trichophytide; the disease, usually beginning with the herald spot which persists for several days, and then breaking out as a generalized eruption, is likely to remind one of trichophytide. I do not believe it has any direct association with diseased tonsils. There should be no more diseased tonsils in a series of cases of pityriasis rosea than in those of any other skin disease of like severity.

I have observed persistent pityriasis rosea, and two cases are reported, one of which lasted almost a year.

As to itching after self medication, that may mean something. A great many of the patients in the clinics use applications of various kinds, particularly the irritating so-called germicidal soaps and proprietary ointments, and this may produce the itching in many instances.

Editorial

THE RELATIVE RARITY OF TUBERCULOSIS OF THE SKIN IN THE UNITED STATES

In reply to a recent request from Dr. Hynek J. Pelc of the State Institute of Public Health of the Czechoslovak Republic at Prague for the statistics of the relative frequency of tuberculosis among skin diseases in the United States, I sent the statistics of the American Dermatological Association. In these statistics of 679,376 (say, 700,000) cases of skin diseases between 1878 and 1911, 4,458 cases were reported as tuberculous conditions; that is about 6/10 per thousand. These cases were reported as tuberculosis cutis verrucosa, lupus vulgaris and scrofuloderma. Of lupus vulgaris there were 1,970 cases, or 2/10 per thousand. Pollitzer, in his discussion of the report,[1] commented on the declining number of cases of tuberculosis of the skin in the later reports of the association. This probably is explainable, Pollitzer believes, by the general decline in tuberculosis in this country. Pelc, in his reply, offered the following interesting suggestion:

"There cannot be any doubt on the basis of your information that lupus is very rare in the United States as compared with our conditions. It seems to me that here is a rare chance for someone in the United States to make an important contribution to the epidemiology of cutaneous tuberculosis by studying the incidence of lupus with special reference to racial susceptibility. Our investigations point to the importance of this factor."

My impression is that the explanation of the difference lies not in differences of racial susceptibility, but in economic conditions. Whatever the explanation, the study that Pelc suggests would be interesting, and, while it is work in the field of epidemiology rather than dermatology, I am passing the suggestion along in the hope that some worker may see in the problem a field of useful investigation.

W. A. P.

1. Pollitzer: J. Cutan. Dis. **32**:317 (April) 1914.

Obituary

HENRY JOSEPH PERRY, M.D.

1871-1926

With the passing of Dr. Henry Joseph Perry, dermatologists of Boston have lost a genial leader and a kindly friend; his death on Feb. 4, 1926, is deeply regretted by many.

Dr. Henry Joseph Perry, son of Rev. Edward A. Perry and Alice (Bullard) Perry, was born on Jan. 28, 1871, in Hanover, Mass. His preliminary education was obtained at the Clinton Liberal Institute of Fort Plain, N. Y.; he was graduated from Tufts College in 1892, and from Harvard Medical School in 1896. During the two years following, he was house officer in the Boston City Hospital; from 1899 to 1918, assistant instructor in bacteriology in the Harvard Medical School and professor of bacteriology at the Massachusetts College of Pharmacy, and from 1918 until his death, associate professor of dermatology in Tufts Medical School. He was also dermatologist of the Evangeline Booth Hospital.

Dr. Perry served on the staff of the Boston Dispensary for many years, and in 1918 was made chief of the department of dermatology and syphilology. In connection with this service he developed the largest clinic of its kind in New England. The year before his death more than 3,000 patients came under his supervision, and made more than 33,000 visits to the morning and evening clinics. He was elected president of the medical staff of the dispensary in 1918, and was constantly called on to serve on many important committees. At the time of his death he was a member of the committee on records and of the committee on hospital and dispensary, and chairman of the committee on drugs and pharmacy; he also served many years on the staff appointments committee.

At the time of his death Dr. Perry was president of the New England Dermatological Society. He was a Fellow of the American Medical Association, and a member of the Massachusetts Medical Society and of several other medical societies, as well as of the Harvard Club of Boston and the Belmont Spring Country Club, and vice president of the Boston Numismatic Society.

He was a great lover of outdoor life, especially of birds, but his greatest hobby was the collection of postage stamps.

The state of Massachusetts is indebted to him for countless hours of faithful service and careful counsel. In his medical practice, in the clinic and in the office, Dr. Perry combined the wisdom of a keen, well trained clinician with the humanism of a counselor and friend. Many persons, in all walks of society, are the happier today because of their contact with him.

W. T. G.

News and Comment

Exhibit of Dermatologic Works.—The *New York Medical Week* of February 5 makes note of books containing original papers and illustrations describing skin diseases named after their discoverers which were being shown in a special exhibit at the Academy of Medicine. This exhibit will form a feature of the meeting of the section on dermatology and syphilology of the academy.

Death of Thibierge.—George Thibierge (1856-1926) was chief of service at the Pitie, Broca, and finally at St. Louis Hospital, until the age of retirement. He was a pupil of Besnier.

His works are too numerous to mention, but among the important ones are "Therapeutics of Skin Diseases" and "Treatment of Syphilis." He was well known for his work on buccal lichen planus, on artificial dermatoses, on scabies of animals transmitted to man and on certain pruriginous dermatitis. On the discovery of tuberculin he went to Berlin to watch the results obtained, and at that time warned against the too optimistic assertions which were made, and also of the grave complications from the use of large doses. He was interested in the ethical side of medicine and published his opinions in a book entitled "Syphilis and Medical Ethics."

He has long been a corresponding member of the American Dermatological Association.

Abstracts from Current Literature

Studies on the Quantitative Estimation of the Total Protein Content in Cerebrospinal Fluid, with Description of a New Method. G. A. Young and A. E. Bennett, Am. J. M. Sc. **172**:249 (Aug.) 1926.

This method consists of precipitating the total protein by alcohol, acetic acid and heat, the resultant precipitation being measured in milligrams per hundred cubic centimeters. Serologic improvement in neurosyphilis can be estimated by this method, and early cerebrospinal involvement can also be determined. Normal readings vary from 25 to 75 mg. per hundred cubic centimeters.

Pellagra. Irwin C. Sutton, Am. J. M. Sc. **172**:374 (Sept.) 1926.

The characteristic features of pellagra occurring in fifty-six patients are reviewed. Sutton believes that, in the light of the present knowledge, pellagra is not a simple deficiency disease, the causative agent producing a substance which renders the skin sensitive to light. He recommends that patients be kept ambulatory as much as possible, and that diet be changed gradually to a higher percentage of proteins.

Varicose Ulcer: Mechanism of Its Causation and Cure, with Notes on the Associated Pain and Pupil Inequality. J. Byrne, Am. J. M. Sc. **172**:553 (Oct.) 1926.

Anything that may impede the return flow of blood from the lower extremities may act as a remote primary cause in the production of varicose ulcer, the immediate cause being incompetence of the valves of the superficial veins. Other factors may be infection, cicatrization, inactivity and impaired metabolism. The cure demands restoration of function by either surgical or non-surgical means, the best of the latter methods being complete rest with elevation of the leg. Compression bandages are quite efficient in ambulatory cases.

Pupil inequality may be found associated with varicose ulcer, which disappears when the ulcer is cured.

Serial Hourly Leucocyte Counts in Tertian Malaria, as Observed in Malaria-Treated General Paralytics. H. A. Bunker, Jr., Am. J. M. Sc. **172**:681 (Nov.) 1926.

An early leukopenia was observed in thirty of thirty-three cases, this being followed by a moderate leukocytosis in twenty-seven out of thirty-five cases. This corresponds comparatively to intravenous injections of foreign proteins, the protein in this instance probably being plasmodial segments.

A Case of Sporotrichosis Meningitis. G. H. Hyslop, J. B. Neal, W. M. Kraus and O. Hillman, Am. J. M. Sc. **172**:726 (Nov.) 1926.

This is a report of the first case of meningitis in which sporotrichosis was the etiologic factor, spores and mycelia being found in the spinal fluid.

TERTIARY SYPHILIS OF THE LIVER. THOS. MCCRAE and W. R. CAVEN, Am. J. M. Sc. **172**:781 (Dec.) 1926.

In 100 cases of syphilis of the liver 35 per cent of the patients were between 30 and 40 years of age and 25 per cent between 40 and 50. Alcohol was found to be a contributing factor. The chief symptoms were described as swelling of the abdomen, pain, fever, dyspnea, loss of weight and general or nodular enlargement of the liver. The Wassermann reaction may be positive or negative but the test should be performed with ascitic fluid if the abdomen is tapped.

The importance of using only iodides and mercury is emphasized, most cases responding well to this treatment; but resulting or coincident cirrhosis cannot be affected or prevented unless the cases are seen and treated early.

Arsphenamine should positively not be administered in this type of cases of hepatic syphilis.

ROENTGEN-RAY THERAPY IN ERYSIPELAS. E. S. PLATOU and LEO RIGLER, Arch. Int. Med. **38**:573 (Nov.) 1926.

In a comparison of two series of cases of erysipelas, one series being treated in the routine manner, with magnesium sulphate and glycerin packs, and the other by means of one application of the roentgen ray, it was found that the latter group showed a prompt improvement in local symptoms and in temperature within from twenty-four to forty-eight hours after treatment, and that the disease in general ran a much shorter course when treated with the roentgen ray.

Only one treatment of the roentgen ray was given, consisting of a dose sufficient to produce a mild erythema (a smaller dose was given on the scalp), the factors being: skin target distance 10 inches (25 cm.), 111 kilovolts (approximately a 7 inch [18 cm.] spark gap), 5 milliamperes, five minutes using a 2 mm. aluminum filter.

STUDIES IN EXPERIMENTAL SYPHILIS: V. THE WASSERMANN TEST IN NORMAL AND SYPHILITIC RABBITS. INTRODUCTION. J. E. KEMP, A. M. CHESNEY and A. K. POOLE, Bull. Johns Hopkins Hosp. **39**:132 (Sept.) 1926.

In preliminary tests 0.3 per cent of normal rabbits were found to give a positive reaction (two in 600); all those inoculated with human nonsyphilitic material gave negative reactions, while all those inoculated with human syphilitic tissue or fluids gave a positive reaction in which inoculation lesions developed, which was also the case when treponemes had been carried through several series of rabbits. The reaction followed the clinical course of the primary lesion, generally disappearing when the lesion healed. The development of later lesions was not accompanied by a return of the positive Wassermann reaction; operative removal of the primary focus in some cases postponed the appearance of the reaction or prevented it entirely, and arsphenamine promptly reversed a positive reaction. In cases of successful reinoculation the Wassermann reaction again became positive in a large proportion of cases.

R. C. JAMIESON, Detroit.

ORTHOPEDIC PROBLEMS IN LEPROSY. P. A. MCILHENNY, J. A. M. A. **87**:1883 (Dec. 4) 1926.

McIlhenny, who is consultant orthopedist to the Carville Leprosarium, relates his experiences with physiotherapeutic measures in the treatment of

the deformities of leprosy. He finds that prophylactic treatment will prevent many deformities; many can be improved greatly and some can be cured. The ultraviolet ray and deep therapy light give excellent results in nerve pains, indurated areas, old ulcers and bone necrosis. Diathermy is of value but must be used with caution when anesthesia is present. Massage, contrast baths and exercises give the best results in moderate contractions. The author finds that anesthetic areas are of lower surface temperature than normal areas, an observation apparently not previously recorded in leprosy.

THE KAHN TEST: A SUPERIOR METHOD FOR THE DIAGNOSIS OF SYPHILIS. J. E. HOUGHTON, O. B. HUNTER and T. M. CAJIGAS, J. A. M. A. **87:**1898 (Dec. 4) 1926.

The authors' experience embraces 13,971 comparative Kahn test and Wassermann reactions. They found the Kahn test superior to the Wassermann reaction (technic not stated). It is more sensitive than the Wassermann reaction in primary cases and those in which treatment has been administered, and has the advantages of simplicity, rapidity and affording more information (with quantitative estimations); it can be carried out in the tropics and aboard ship, where the Wassermann test, because of its complexity and technical necessities, is not available. This report is from the U. S. Naval School and George Washington University Medical School, Washington, D. C.

THE TREATMENT OF PHAGEDENIC ULCERATIONS OF THE GENITALS WITH INTRAVENOUS ADMINISTRATION OF ANTIMONY AND POTASSIUM TARTRATE. J. KINGSBURY and S. M. PECK, J. A. M. A. **87:**1900 (Dec. 4) 1926.

The authors have found this remedy rapidly successful in genital ulcerations of nonspecific origin which did not respond to local measures. The treatment should not be employed for simple chancroids, but reserved for those types of genital lesions which deep and rapid ulceration has rendered unsuitable for routine local measures. The drug is given intravenously in the same manner as for granuloma inguinale.

ACANTHOSIS NIGRICANS: JUVENILE TYPE. L. M. WIEDER, J. A. M. A. **87:**1964 (Dec. 11) 1926.

Wieder uses the term juvenile as indicating patients under 20 years of age presenting no evidence of malignant disease. The general health is unimpaired. Up to the present some eleven cases of the juvenile type of the disease have been reported.

In the embodied case report, the patient was 10 years old when first seen. The cutaneous picture was characteristic. General medical study indicated a hypofunction of the suprarenal glands. From his study of this case and a review of the literature, the author concludes that many cases cannot be accounted for on the basis of pressure by intra-abdominal tumors on the abdominal sympathetic and suprarenals. In many cases the pigmentary changes may be due to hypofunction of the suprarenals and it is suggested that all cases should be studied from this angle.

DERMATOMYOSITIS: REPORT OF CASE. JAMES S. MCLESTER, J. A. M. A. **87:**1990 (Dec. 11) 1926.

The patient developed a widespread dermatitis, suggestive at first of lichen planus, but later protean in character. The skin was red, smooth and thickened,

with some vesiculation, telangiectasia and scarring. Muscle pains, weakness, and edema were also present. A suggestion of Theobald Smith that the disease may be caused by sarcosporidia is mentioned. About fifty cases of the disease have been reported.

MICRO-KAHN REACTIONS. R. L. KAHN, J. A. M. A. **87**:2092 (Dec. 18) 1926.

In a brief note, Kahn calls attention to the advantage of this method when only small amounts of serum are obtainable. The technic for this method using minute amounts is described.

MICHAEL, Houston, Texas.

STUDIES ON X-RAY EFFECTS: XV. THE PREVENTION OF PIGMENT FORMATION IN THE HAIR FOLLICLES OF COLORED MICE WITH HIGH VOLTAGE X-RAY. R. T. HANCE and J. B. MURPHY, J. Exper. Med. **44**:339 (Sept.) 1926.

The formation of pigment in the hair follicles was prevented by hard roentgen rays, using 70 kilovolts, 8 milliamperes and 36 mm. target distance, with exposures from twenty to one hundred minutes. The regrowth of hair was white, the same phenomenon occurring on the side of the rats opposite the one rayed, with exposures of from seventy to one hundred minutes.

STUDIES ON THE BIOLOGY OF STREPTOCOCCUS: IV. BIOLOGY OF HEMOLYTIC STREPTOCOCCUS: ANTIGENIC RELATIONSHIP BETWEEN STRAINS OF THE SCARLATINAL AND ERYSIPELAS GROUP. F. A. STEVENS and A. R. DOCHEZ, J. Exper. Med. **44**:439 (Oct.) 1926.

It was impossible to distinguish scarlatinal strains from erysipelas strains by absorption of agglutinin.

EFFECTS OF LIGHT ON NORMAL RABBITS WITH ESPECIAL REFERENCE TO THE ORGANIC REACTION: I. CLINICAL AND POST MORTEM OBSERVATIONS; II. ORGAN WEIGHTS; III. ANALYSIS OF ORGAN WEIGHT. L. PEARCE and C. M. VAN ALLEN, J. Exper. Med. **44**:447, 461 and 483 (Oct.) 1926.

In these experiments some of the rabbits were kept in constant illumination (not ultraviolet) and others were kept in darkness. The effect of light in general produced a well marked decrease in the relative weights of most organs. The same effect, only less pronounced, was produced in those rabbits kept in darkness.

STUDIES IN EXPERIMENTAL SYPHILIS: VI. ON VARIATIONS IN THE RESPONSE OF TREATED RABBITS TO REINOCULATION; AND ON CRYPTOGENETIC REINFECTION WITH SYPHILIS. A. M. CHESNEY and J. E. KEMP, J. Exper. Med. **44**:589 (Nov.) 1926.

These experiments showed that syphilitic rabbits treated with arsphenamine within sixty-nine days after inoculation could be reinoculated by the same strain of treponemes and react in several different ways. They might or might not show an inoculation lesion, with general dissemination of the virus and a positive Wassermann reaction.

If treatment was postponed for six months more, reinoculation was almost always impossible, although many such animals (50 per cent) could be reinoculated by depositing the virus on a granulating wound on the back.

It is suggested that the recurrence of a positive Wassermann reaction in a case of treated early syphilis, in which a positive Wassermann reaction had become negative under treatment, could be a reinfection without demonstrable inoculation site rather than a relapse of the disease.

ETIOLOGY OF OROYA FEVER: III. THE BEHAVIOR OF BARTONELLA BACILLIFORMIS IN MACACUS RHESUS. H. NOGUCHI, J. Exper. Med. **44**:697 (Nov.) 1926.

In some of the inoculated animals, nodules and miliary lesions appeared on the skin and were like those reported in instances of inoculation of monkeys with human tissue of verruga peruviana.

R. C. JAMIESON, Detroit.

ARSENIC AS AN ETIOLOGICAL FACTOR IN THE GENESIS OF ECZEMA. BINFORD THRONE, LAIRD S. VANDYCK, ELEANOR MARPLES and C. N. MYERS, New York State J. Med. **26**:843 (Oct. 15) 1926.

TREATMENT OF ARSENICAL ECZEMA. Ibid. **26**:970 (Dec. 1) 1926.

A description is given of work done by the authors on the determination of arsenic content in the blood of patients suffering from eczema, and on the treatment in these cases by means of the intravenous injection of solutions of sodium thiosulphate. Injections of 0.5 Gm. of the drug, freshly dissolved in sterile distilled water, were given every third day. The strength of the solution is not given. The authors report that the urine of many patients suffering from eczema was found not to contain arsenic until an injection of sodium thiosulphate was given; this was followed by the appearance of arsenic in the urine. None of the tables published gives the preliminary arsenic determination. Mention is not made of arsenic determination, before and after the administration of sodium thiosulphate, in the urine of patients not suffering from eczema. The therapeutic results were promising; many cases which had resisted all other measures responded to this treatment. The etiologic rôle of arsenic in these cases was made probable, but statistics were lacking to show the arsenic content of the urine of other patients, and of these patients after an apparent cure.

RAYNAUD'S DISEASE — A PATHOLOGIC ENTITY — REPORT OF A CASE FOLLOWING LERICHE OPERATION. W. F. CUNNINGHAM, New York State J. Med. **26**:972 (Dec. 1) 1926.

The author reviews briefly the history of Raynaud's disease, and reports a case presenting typical symptoms. Examination of the arteries, after amputation of the middle finger under local anesthesia, showed obliterating endarteritis. Temporary improvement followed the Leriche operation.

MICHAEL, Houston, Texas.

MACULAR ATROPHY OF SYPHILITIC ORIGIN. G. B. DOWLING, Proc. Roy. Soc. Med. **20**:91 (Dec.) 1926.

A man, aged 44, presented two eruptions, one a tertiary syphilid near the left elbow, the other disseminated over the back, chest and shoulder. He had acquired syphilis twenty-four years before, followed within three months by a generalized eruption of raised pink spots "like blisters," which within another few months subsided and assumed their present aspect. They had not undergone further alteration. The epidermis over the lesions remained unbroken

throughout. There were a large number of round or oval lenticular elevated spots, symmetrically disposed and distributed mainly along the lines of cleavage, over the back, chest and abdomen, and on the shoulders. Some are rather firm, others soft and compressible, exhibiting "cigarette paper" wrinkling. A point of interest was the close resemblance to some of the reported cases of multiple benign tumor-like new growths of Schweninger and Buzzi, particularly a case reported by Pusey, which appears to have been practically identical, and one by Crocker, apparently due to syphilis. The difference is evidently a question of the degree of bulging, and Buzzi's disease is not any more than a macular atrophy, though not necessarily due to syphilis.

A Case of Recklinghausen's Disease, Shown in 1905, as an Early Pigmentary "Forme Fruste." F. Parkes Weber, Proc. Roy. Soc. Med. **20**:92 (Dec.) 1926.

A woman, aged 36, presented a typical von Recklinghausen's disease. She had been presented in 1905 at which time only pigmentary lesions were present. A typical xanthelasma palpebrarum had developed at the age of 18.

Hypoplasia (Aplasia) Pilorum Moniliformis. F. Parkes Weber, Proc. Roy. Soc. Med. **20**:95 (Dec.) 1926.

A boy, aged 3, presented characteristics of congenital hypoplasia pilorum moniliformis or intermittens (monilethrix, moniletrichia, "Spindelhaare," "beaded hair"), with moderate follicular keratosis of the scalp, being otherwise normally developed. There was not a family history of a similar condition. It was noted that the defective condition of the eyelash and eyebrow hairs, which was also present, had not been associated with any obvious follicular keratosis (to the naked eye), and in this disease, the moniliform and defective condition of the scalp hairs, though usually associated with more or less follicular keratosis, seems not to be due entirely to the keratosis. The disease is probably allied to MacLeod's "ichthyosis follicularis," though MacLeod did not actually find moniliform hairs in his cases. Nor was the occurrence of moniliform hairs noted in Taenzer's cases of "Ulerythema ophryogenes," which MacLeod regards as possibly a severe form of his "ichthyosis follicularis," with progressive cicatricial changes.

Guy, Pittsburgh.

Investigations Regarding the Etiology of Lupus Erythematosus During Twenty Years: a General Review. A. Civatte, Ann. de dermat. et syph. **7**:465 (Aug.-Sept.) 1926.

The author reviews the various theories and the evidence presented concerning the tuberculous or nontuberculous nature of lupus erythematosus, showing that although a definite answer has not been found, the conception of the subject has improved considerably.

Rebellious Furunculosis: Failure of Vaccine Therapy; Improvement Under Autohemotherapy; Cure by Heterohemotherapy. Paul Ravaut and Rene Huguenin, Ann. de dermat. et syph. **78**:486 (Aug.-Sept.) 1926.

Symptoms of shock followed the last procedure. Blood of a different group was used.

PECULIAR PRICKLE CELL EPITHELIOMA OF THE FACE, ARISING ON A SCAR OF LUPUS VULGARIS. XAVIER VILANOVA, Ann. de dermat. et syph. **7**:493 (Aug.-Sept.) 1926.

The lupus, in a young man, was of seventeen years' duration, and the epithelioma had grown with unusual rapidity. However, the lymph nodes apparently were not involved. Fatal metastases ensued.

SOME REMARKS ON THE SEARCH FOR SPIROCHETES. MILAN KITCHEVATZ, Ann. de dermat. et syph. **7**:501 (Aug.-Sept.) 1926.

The author advises that the exudation from the suspected sore be examined repeatedly with the dry system, objective 8 and ocular 3 being used, whereby the organisms can be identified in a larger field.

A CASE OF PARAPSORIASIS IN PLAQUES, OF TUBERCULOUS NATURE. P. A. PAVLOFF and K. S. GAVRILOFF, Ann. de dermat. et syph. **7**:504 (Aug.-Sept.) 1926.

In this case, the injection of tuberculin was followed by an exacerbation, with the formation of new lesions.

PURPURA ANNULARIS TELANGIECTODES OF MAJOCCHI. F. BALZER, Ann. de dermat. et syph. **7**:529 (Oct.) 1926.

The author completely describes the condition, considering its symptoms, pathology, diagnosis, prognosis and treatment, but is mainly concerned with a discussion of its etiology. He feels that it may be one of the tuberculids, in spite of the fact that signs of tuberculosis have been lacking in some cases. He suspects that the etiologic factor may be a degenerative form of the bacillus, or a filtrable tuberculous "virus," present perhaps even in cases with a negative tuberculin reaction. The process apparently is embolic. Further researches are required for the confirmation or rejection of this theory.

VAST UNILATERAL ANGIOMATOUS NEVUS, WITH SCOLIOSIS. FREDERICK BERTRAND, Ann. de dermat. et syph. **7**:550 (Oct.) 1926.

The left lower extremity and trunk were involved, in a girl, aged 19, and there had been pain in the affected extremity. Radiographic study revealed the presence of osteoperiostitis of the tibia, and there was an accompanying scoliosis, apparently static.

THIRD CONGRESS OF DERMATOLOGISTS AND SYPHILOLOGISTS OF THE FRENCH TONGUE. H. RABEAU, Ann. de dermat. et syph. **7**:554 (Oct.) 1926.

The transactions are reported.

ARTIFICIAL TUMORS PROVOKED BY SUBCUTANEOUS INJECTIONS OF MINERAL OILS. C. LENORMANT and PAUL RAVAUT, Ann. de dermat. et syph. **7**:601 (Nov.) 1926.

The authors describe all of the oil tumors, but more particularly those due to the injection of medicaments in oily mediums. Vegetable oils may also cause these tumors. Individual susceptibility appears important. The histologic characteristics are considered. By way of treatment, complete excision, as early as possible, is recommended. There are recurrences in some cases.

CONTRIBUTION TO THE PATHOGENIC STUDY OF DERMATOSES. B. DUJARDIN and N. DECAMPS, Ann. de dermat. et syph. **7**:628 (Nov.) 1926.

According to the authors, the chronicity and tendency toward recurrence of certain dermatoses can be accounted for in part by certain immunologic phenomena, notably "hetero-allergy" and "hyperpexy." The term "hetero-allergy" is applied to cases in which sensitization to one substance increases a latent sensitization to others. "Hyperpexy" designates an increased susceptibility of a certain tissue, or area of the skin, often due to previous inflammation. Illustrative instances are cited.

LEUKOPLAKIA ON A PRECANCEROUS MELANOSIS OF THE LIP. A. NANTA, Ann. de dermat. et syph. **7**:645 (Nov.) 1926.

In a man, aged 42, the two premalignant conditions were curiously superimposed, the leukoplakia apparently having been produced secondarily by the melanosis. The histologic picture is described.

SYPHILITIC CHANGES RETARDED SPONTANEOUSLY OR BY ANTISYPHILITIC TREATMENT. GOUGEROT, Bull. Soc. franç. de dermat. et syph. **33**:461, 1926.

Following a penile chancre in 1918, a patient with positive serology had had irregular arsenical treatment, starting in October, 1922. In 1924, following two courses of bismuth injections, three penile sores appeared, 100 days after the last sexual exposure. The dark-field observations were positive. In a second patient, with signs of congenital syphilis and partially positive serologic observations, treatment was not given, excepting a single small dose of neoarsphenamine in 1923. In June, 1924, an indurated papule appeared at the meatus, followed by the development of a strongly positive Wassermann reaction; the lesion was said to have appeared 110 days after the last exposure.

ERYTHEMA OF THE NINTH DAY IN THE COURSE OF INTRAVENOUS TREATMENT WITH NEOARSPHENAMINE. G. MILIAN, Bull. Soc. franç. de dermat. et syph. **33**:465, 1926.

In a young woman under treatment for a secondary syphilid, the first and second injections of the drug were followed by febrile reactions. The second reaction continued, with slight tonsillitis and a scarlatiniform erythema. The third injection was followed by a milder reaction, and subsequent injections were given uneventfully.

PSEUDOXANTHOMA ELASTICUM AND INITIAL ERYTHEMATOPAPULAR LESIONS. MILIAN and LAMBERT, Bull. Soc. franç. de dermat. et syph. **33**:466, 1926.

In a woman, aged 30, the condition was of six months' duration, the neck and abdomen being involved. Erythematous papules on the abdomen apparently represented the initial or inflammatory stage. The histologic picture resembled that of syphilis.

GONOCOCCIC ABSCESS OF THE PENILE RAPHE. G. MILIAN, Bull. Soc. franç. de Dermat. et syph. **33**:469, 1926.

Three of the lesions were found in a case in which gonorrheal urethritis apparently had never been present.

A Case of Poikiloderma Atrophicans Reticulare of the Face and Neck. Lortat-Jacob and Legrain, Bull. Soc. franç. de dermat. et syph. **33**:470, 1926.

Affecting chiefly the right side of the face and neck, with pigmentation, the condition had been present for three or four years, in a woman, aged 70. The cause could not be found.

A Case of Mycosis Fungoides. Lortat-Jacob and Pierre Bourgeois, Bull. Soc. franç. de dermat. et syph. **33**:471, 1926.

A typical case of two years' duration, in a woman, aged 81, is reported, with photographs.

A Case of Lepra of the Mixed Type, Treated by Cryotherapy. Lortat-Jacob and Morlaas, Bull. Soc. franç. de dermat. et syph. **33**:474, 1926.

In a sailor with clinical manifestations of six months' duration, the nodules disappeared after three applications of solid carbon dioxide. Neoarsphenamine and chaulmoogra oil had also been given.

Endemic Familial Favus, Extending Through Three Generations. E. Jeanselme and L. Hufnagel, Bull. Soc. franç. de dermat. et syph. **33**:476, 1926.

Beginning with the great grandmother, nine members of the family had been infected; fifteen others had remained free from the infection.

Suppurative Tinea of the Buttock. Jeanselme and Burnier, Bull. Soc. franç. de dermat. et syph. **33**:478, 1926.

In a case of rural origin, *Trichophyton gypseum* was found.

A Case of Oriental Boil. Jeanselme and Burnier, Bull. Soc. franç. de dermat. et syph. **33**:479, 1926.

The causative organisms were found in a lesion of the forehead, of a year's duration. The infection apparently had been acquired in Marseilles, from Armenian immigrants.

A Case of Granuloma Annulare. Burnier and Rejsek, Bull. Soc. franç. de dermat. et syph. **33**:480, 1926.

In a girl, aged 5½ years, the dorsa of the hands were involved. The histologic observations are reported.

Lupus of the Face Treated by the Butter of Antimony. Dohen, Bull. Soc. franç. de dermat. et syph. **33**:482, 1926.

After curetting, dressings of this preparation were used effectively in a case of lupus vulgaris of ten years' duration, with extensive involvement of the nose and cheeks. The following formula of Darier was used:

	Gm.
Antimony trichloride	20
Salicylic acid	20
Creosote	40
Hydrous wool fat	80
Extract of opium	4
Procaine hydrochloride	4

NORMAL CEREBROSPINAL FLUID IN AN ADULT WHOSE CONGENITAL SYPHILIS IS MANIFESTED ONLY BY A PERSISTENTLY POSITIVE WASSERMANN REACTION. HYPOTHESES AS TO THE SITE OF THE LATENT SYPHILITIC FOCUS. PAUL CHEVALLIER, Bull. Soc. franç. de dermat. et syph. **33**:483, 1926.

In such cases, Chevallier feels that the latent syphilitic involvement may be pulmonary.

TREATMENT BY ABSOLUTE FASTING OFTEN CLEARS UP, IN A FEW DAYS, THE ACUTE FLAREUPS OF DERMATOSES, ESPECIALLY THE INFECTIOUS DERMATOSES OR THOSE OF INFECTIOUS APPEARANCE, SUCH AS SEBORRHEIC ECZEMA AND FACIAL ACNE. PAUL CHEVALLIER, Bull. Soc. franç. de dermat. et syph. **33**:487, 1926.

Chevallier feels that this treatment, used for two or three days with rest in bed and an increased water intake, brings about rapid improvement. Following this, the ordinary therapeutic measures may be used.

ARTERIAL EMBOLUS OF THE BUTTOCK FOLLOWING AN INTRAMUSCULAR INJECTION OF BISMUTH HYDROXIDE. A. SEZARY, Bull. Soc. franç. de dermat. et syph. **33**:488, 1926.

A painful disability persisted for six days after the injection. Ecchymoses constituted the only visible change. It has been shown that this accident may occur even when blood does not return through the needle before the injection.

NOTE ON A COCCOBACILLUS ISOLATED IN A CASE OF MYCOSIS FUNGOIDES. E. BODIN and M.-L. CHEVREL, Bull. Soc. franç. de dermat. et syph. **33**:491, 1926.

In a case of five years' duration, with tumor formation, the diagnosis was confirmed histologically. Rabbits and guinea-pigs were inoculated on three occasions with the patient's blood, taken aseptically, and once with serum from a tumor. Tuberculiform lesions appeared in the skin and viscera of the inoculated animals, and there was lymphadenopathy. From these lesions an organism was recovered repeatedly, and its morphologic and cultural characteristics are described.

INSULIN IN PATIENTS WITH GLYCEMIA: RESULTS OBTAINED IN SOME CHRONIC CONDITIONS (DERMATOSES OR NEUROSYPHILIS). LEVY-FRANCKEL, DUCOURTIOUX and BRETILLON, Bull. Soc. franç. de dermat. et syph. **33**:500, 1926.

Glycosuria was absent in the eleven patients treated. Relief followed in one case of pruritus vulvae and in two of perforating plantar ulcers.

ICTERUS ACCOMPANYING A SYPHILITIC CHANCRE. LOUSTE, THIBAUT and TISSERAUD, Bull. Soc. franç. de dermat. et syph. **33**:503, 1926.

Symptoms, aside from fatigue, were not observed, and abdominal tenderness was absent. Mercury was given intravenously, and the jaundice disappeared.

CYST OF THE MEATUS IN A PATIENT WITH CONGENITAL SYPHILIS. L. CHATELLIER, Bull. Soc. franç. de dermat. et syph. **33**:506, 1926.

Congenital cysts at the meatus are rare. This one was excised, with a good result.

True Sebaceous Cyst of the Root of the Nose. L. Chatellier, Bull. Soc. franç. de dermat. et syph. **33**:507, 1926.

An epidermic cyst, independent of the follicles, had been present since infancy in a man, aged 21. A histologic description is given, and the cyst is differentiated from dermoid tumors.

Psoriasis Becoming Verrucous at Points of Pressure of the Shoes. C. Laurentier and Vieux, Bull. Soc. franç. de dermat. et syph. **33**:508, 1926.

In a fisherman, who wore shoes without socks when standing in wet sand, the psoriatic lesions about the ankles were verrucous.

Cholesterinemia and Cholesterin in Psoriasis (Contribution to the Study of the Cutaneous Cholesterinides). A. Lacroix, Bull. Soc. franç. de dermat. et syph. **33**:515, 1926.

In cases with a high cholesterin content of the epidermic scales, there was found to be an accompanying hypercholesterinemia. In such cases, the administration of insulin has often been followed by fading of the eruption, coinciding with a diminution in the cholesterin content of the blood and scales. However, since patients with high cholesterin seem to resist such infections as tuberculosis, it would seem advisable to continue the local treatment of psoriasis, without resorting to the use of insulin.

Changes in the Cerebrospinal Fluid in the Course of Syphilis in Algerian Natives (Contribution to the Study of Exotic Syphilis). Raynaud, Lacroix, Goeo-Brissonniere and Beraud, Bull. Soc. franç. de dermat. et syph. **33**:520, 1926.

The observations are reported from 152 cases of early syphilis, 120 of tertiary syphilis and fifty-two of neurosyphilis. Pathologic changes were found in the fluid of 64.4 per cent of the first group, and 58.3 per cent of the second. In early syphilis, an increase in albumin was found more often than in tertiary cases, and in the latter lymphocytosis predominated. In cases with pathologic fluid observations, postpuncture reactions were frequent.

Researches on the Etiology and Treatment of the Erythrocyanoses (Erythrocyanotic Infiltrations), and More Particularly of the Submaleolar Erythrocyanoses. E. Juster, Bull. Soc. franç. de dermat. et syph. **33**:524, 1926.

This neurocirculatory disturbance, occurring especially in women, has been successfully treated by Juster with hydrotherapeutic measures, especially diathermy. Massage is also recommended.

Precocious Syphilitic Phlebitis. Georges Levy, Bull. Soc. franç. de dermat. et syph. **33**:534, 1926.

An inflammation of the internal saphenous vein, which occurred in a young man with syphilis of four months' duration, disappeared after a few weeks of antisyphilitic treatment.

FEBRILE BULLOUS DERMATOSIS APPROACHING ACUTE PEMPHIGUS BUT FINALLY CURED. J. ROEDERER and P. LANZENBERG, Bull. Soc. franç. de dermat. et syph. **33**:536, 1926.

An eruption of forty-five days' duration, in a butcher, subsided under the intravenous administration of methenamine, together with enteroclysis and the use of a collargol ointment.

CANCER EN CUIRASSE IN A MAN (GLANDULAR EPITHELIOMA OF THE BREAST). GEORGES LEVY, Bull. Soc. franç. de dermat. et syph. **33**:541, 1926.

The tumor had been present for eight months, in a man, aged 53. The outcome was fatal.

LEG ULCERS IN PATIENTS WITHOUT HYPERGLYCEMIA, CURED BY INSULIN USED AS A LOCAL APPLICATION. PAUTRIER, SCHMID and ULLMO, Bull. Soc. franç. de dermat. et syph. **33**:544, 1926.

Two cases of long duration were cured in three weeks.

A CASE OF LEUKEMIC TUMORS. P. MASSON and A. GUNSETT, Bull. Soc. franç. de dermat. et syph. **33**:546, 1926.

The blood picture and histologic observations in an old man were those of leukemia. Improvement followed roentgen-ray exposures.

PRURIGO NODULARIS AND LICHEN PLANUS. L. SPILLMANN, J. WATRIN and A. CREANGE, Bull. Soc. franç. de dermat. et syph. **33**:547, 1926.

Nodules were present on the anterior surface of the legs, and there was lichen planus of the buccal mucosa. Pruritus was absent.

ON TRAUMATIC SYPHILIS: DEFINITION. CLEMENT-SIMON, Bull. Soc. franç. de dermat. et syph. **33**:549, 1926.

Reviewing the literature, the author has found only eight cases in which a single violent traumatism was followed by the development, in situ, of cutaneous syphilids. These were all tertiary, and mainly ulcerative, and the underlying bone was usually involved. In only three cases was the healing of wounds retarded. One case was found in which a fracture failed to unite. In thirty-five cases, syphilitic manifestations appeared at the site of the repeated traumatisms. In several instances, the bone was involved, but not the skin. Numerous cases were found in which syphilitic manifestations occurred at the sites of subcutaneous injections. In two cases, involvement ensued where bones had been fractured prior to syphilitic infection. The author reviews various theories concerning the nature of these processes, mentioning latent foci of spirochetes and cycles of tissue immunity and sensitization.

IDIOPATHIC HEMORRHAGIC SARCOMATOSIS (KAPOSI). E. RAMEL, Bull. Soc. franç. de dermat. et syph. **33**:557, 1926.

This condition occurred in a syphilitic patient, a Jew, who had spent most of his life in Poland. At necropsy, endotheliomas were found in the dura mater.

PRICKLE CELL EPITHELIOMA OF THE FRONTAL REGION; METASTASIS IN THE RIGHT PAROTID. E. RAMEL, Bull. Soc. franç. de dermat. et syph. **33**:561, 1926.

The histologic features of both tumors are described.

Bees' Nest Epithelioma of the Cheek, Histologically Basal Celled. Pautrier, G. Levy and Diss, Bull. Soc. franç. de dermat. et syph. **33**:564, 1926.

An elevated border not only surrounded this tumor, but also divided the surface into sections, between which were cavities due to cell destruction. A good photograph is included.

Multiple Epitheliomas of the Face and Extremities; Vegetating Prickle Cell Epithelioma in a Plaque, Resembling Paget's Disease, in the Sternal Region; Cure by Roentgen-Ray Therapy. E. Ramel, Bull. Soc. franç. de dermat. et syph. **33**:566, 1926.

A histologic description, photograph and photomicrograph are included. The so-called Pagetoid tumor was described by Darier, and has been investigated by Eliascheff, Pautrier and others.

A Case of Dermatomyosarcoma Treated by Radium. P. Masson and A. Gunsett, Bull. Soc. franç. de dermat. et syph. **33**:574, 1926.

In a man, aged 58, the lobule of the ear had been destroyed by this malignant process, which was diagnosed histologically. Nearly five months after a single intensive radium treatment, the cure was apparently complete.

Erythema Multiforme Recurring for Five Years. Georges Levy, Bull. Soc. franç. de dermat. et syph. **33**:579, 1926.

A pruritic eruption on the hands, recurring every winter, showed characteristics of dermatitis herpetiformis, and may have represented a transition form.

A Case of Syringocystadenoma. J. Roederer and A. Diss, Bull. Soc. franç. de dermat. et syph. **33**:582, 1926.

A typical case, involving the anterior chest wall in a woman, aged 40, is described clinically and histologically.

Multiple Papillomas of the Labial Commissures and Tongue, and Papilloma of the Right Cheek Developing on a Senile Keratosis. A. Diss and J. Gay Prieto, Bull. Soc. franç. de dermat. et syph. **33**:583, 1926.

In a woman, aged 67, the papillomas appeared almost simultaneously.

Lichenoid Syphilid with Circinate Tertiary Grouping on the Forearms and Hands. L. M. Pautrier and Sloimovici, Bull. Soc. franç. de dermat. et syph. **33**:585, 1926.

The duration of the infection was unknown. Arsphenamines and bismuth were administered, and the eruption rapidly faded.

Calcareous Concretions of the Hands. Georges Levy, Bull. Soc. franç. de dermat. et syph. **33**:589, 1926.

A woman, aged 37, said that the condition had first appeared six years previously, during her first pregnancy, with crises of acro-asphyxia.

LEUKOPLAKIA AND "KRAUROSIS VULVAE." PAUTRIER and GLASSER, Bull. Soc. franç. de dermat. et syph. **33**:592, 1926.

In a patient, aged 68, there were large vegetative, verrucous patches on the vulva, and beginning atrophy of the labia.

TWO CASES OF SECONDARY SYPHILIS WITH HYPERTROPHIC PERIVULVAR CUTANEOUS AND MUCOUS PLAQUES, IN WHICH SPIROCHETES WERE NOT FOUND IN THE LESIONS AND WITH NEGATIVE BORDET-WASSERMANN AND HECHT REACTIONS. PAUTRIER, G. LEVY and A. ULLMO, Bull. Soc. franç. de dermat. et syph. **33**:595, 1926.

Previous treatment had not been administered in either case, and the lesions disappeared rapidly when arsphenamines and bismuth were administered.

EXCEPTIONAL CASE OF INTOLERANCE TO IODINE: EDEMA OF THE NECK AND LARYNX AFTER A SINGLE IODINE DRESSING IN THE REGION OF THE NECK. P. LANZENBERG, Bull. Soc. franç. de dermat. et syph. **33**:598, 1926.

In a case of sycosis a moist dressing of Lugol's solution was applied, and the ensuing reaction was very severe.

BASAL CELL EPITHELIOMA OF SUDORIPAROUS ORIGIN. A. DISS and J. PETERSCHMIDT, Bull. Soc. franç. de dermat. et syph. **33**:599, 1926.

A tumor which occurred on the lower eyelid of a man, aged 67, was examined histologically and found to contain cells whose morphology and arrangement was that of the sweat duct epithelium.

ATYPICAL ERYTHEMATOUS AND ERYTHEMATOSQUAMOUS LICHEN PLANUS (NONPAPULAR). GOUGEROT, DUCOURTIOUX and TISSERAND, Bull. Soc. franç. de dermat. et syph. **33**:611, 1926.

In a woman, aged 36, with a widespread eruption of typical lichen planus, present for nine months, there were macules on the left hand and right arm. These patches were not typical of lichen planus, but they disappeared, together with the rest of the eruption, after several injections of neoarsphenamine.

TWO CASES OF LUPUS ERYTHEMATOSUS IN PATIENTS WITH CONGENITAL SYPHILIS; CURE BY SPECIFIC TREATMENT. HUDELO and RABUT, Bull. Soc. franç. de dermat. et syph. **33**:614, 1926.

In one case the eruption disappeared after three courses of neoarsphenamine, and in the other after bismuth injections.

MULTIPLE SEBACEOUS ADENOMAS. DISSEMINATED OVER THE ENTIRE BODY, EXCEPTING THE FACE. HUDELO, JAY and CAILLIAU, Bull. Soc. franç. de dermat. et syph. **33**:615, 1926.

In a woman, aged 45, the small lesions had appeared three months previously. The great flexures were the sites of predilection. The histologic observations are described.

BIOPSIES ON TWO CASES OF SUBMALLEOLAR ERYTHROCYANOSIS; PRESENTATION OF SECTIONS. JUSTER and DELATER, Bull. Soc. franç. de dermat. et syph. **33**: 618, 1926.

The conclusion is that the condition is primarily vascular rather than tuberculous.

ATYPICAL LICHEN PLANUS: PHIMOSIS DUE TO LICHEN PLANUS ATROPHICUS ET SCLEROSUS. P. FERNET and G. SOLENTE, Bull. Soc. franç. de dermat. et syph. **33**:619, 1926.

The patient, aged 42, presented generalized lichen planus, and said that he had had repeated outbreaks of the eruption since 1905. The phimosis had been present for a year.

FIBROMYOMA ON LUPUS. MILIAN and PERIN, Bull. Soc. franç. de dermat. et syph. **33**:621, 1926.

The tumor resembled an epithelioma, but histologic study showed it to be a leiomyoma with malignant tendencies.

BEGINNING FIBROSARCOMA OF THE INTERNAL MALLEOLUS. MILIAN and PERIN, Bull. Soc. franç. de dermat. et syph. **33**:621, 1926.

The tumor, which had been present for sixteen months in a woman, aged 42, presented a vascular arrangement somewhat different from the cases of Rabut and Cailliau and of Darier and Ferrand *(Bull. Soc. franç. de dermat. et syph.*, 1923 and 1924).

MYCOSIS FUNGOIDES WITH BULLOUS, ULCERATIVE ELEMENTS, OF CYCLIC OR POLYCYCLIC ARRANGEMENT. LORTAT-JACOB and LEGRAIN, Bull. Soc. franç. de dermat. et syph. **33**:623, 1926.

The eruption, in a man, aged 30, was accompanied by pains in the lower extremities and a slight lymphocytosis in the spinal fluid. The histologic observations and the blood picture were those of granuloma fungoides rather than leukemia cutis.

DERMAL PLAQUES INTERMEDIATE BETWEEN MYCOSIS FUNGOIDES AND THE CUTANEOUS LEUKEMIDES, WITH SYMPTOMS OF SCLERODERMA. PAUL RAVAUT and ROBERT WALLICH, Bull. Soc. franç. de dermat. et syph. **33**:627, 1926.

In a man, aged 62, the lesions were of two and one half years' duration, the trunk, neck face, arms and hands being involved. Erythema, pruritus, general manifestations and a tendency to ulceration were not present, and the blood observations suggested an aleukemic leukemia. The histologic picture was not that of sarcoid. Clinically, there was some resemblance to scleroderma.

APROPOS A FAMILIAL AND HEREDITARY CASE OF SYMMETRICAL ADENOMA SEBACEUM OF THE FACE, ACCOMPANIED BY MULTIPLE EPITHELIAL NEW GROWTHS. LOUSTE, CAILLIAU, DUCOURTIOUX and LOTTE, Bull. Soc. franç. de dermat. et syph. **33**:630, 1926.

A girl presented all types of the small tumors. They were also present in her two sisters, her father and his two sisters. All were mentally subnormal. The patient presented peculiar papillomas on the gingival and lingual mucosa, and cutaneous pigmentation suggesting von Recklinghausen's disease.

SYSTEMATIZED PIGMENTARY NEVI OF RADICULAR DISTRIBUTION AND REGRESSIVE EVOLUTION. LOUSTE, DUCOURTIOUX and LOTTE, Bull. Soc. franç. de dermat. et syph. **33**:634, 1926.

At the age of 6 months, elevations varying in size from that of a pinhead to that of a coin had appeared on the fingers, at first erythematous and later

becoming brown. Each element attained its full development in six months, and disappeared after two years, gradually, not leaving any trace. As presented, the patient was 13 years old, and the hand and forearm were involved, in the area supplied by the sixth cervical to the first dorsal segments. As elements faded distally, new ones appeared more and more proximally. The histologic observations are described.

ALARMING PURPURA FOLLOWING SULPHARSPHENAMINE IN A CARDIORENAL CASE; POLYINTOLERANCE TO ANTISYPHILITIC DRUGS. LOUSTE, DUCOURTIOUX and LOTTE, Bull. Soc. franç. de dermat. et syph. **33**:636, 1926.

In a neglected case of syphilitic aortitis, the fourth injection of the arsenical drug was followed by severe purpura, with anemia and splenic enlargement.

A CASE OF RECURRING OSTEOSARCOMA WITH MYELOPLAXES. LOUSTE, CAILLIAU, DUCOURTIOUX and LOTTE, Bull. Soc. franç. de dermat. et syph. **33**:639, 1926.

A man, aged 64, had first noticed a swelling in the left forearm in July, 1923. It reached the size of two eggs, and was excised in September, 1923. The recurring tumor was violaceous, orange-sized and painful; the diagnosis was made by histologic study.

TUBERCULOUS ELEPHANTIASIS OF THE VULVA. HUDELO, RABUT and CAILLIAU, Bull. Soc. franç. de dermat. et syph. **33**:650, 1926.

The condition had been present for eight years, in a woman, aged 26. The histologic observations are described. Bacilli were not found.

PAGET'S DISEASE WITH PARTICIPATION OF THE LACTIC CANALS. G. MILIAN, Bull. Soc. franç. de dermat. et syph. **33**:652, 1926.

The involvement of the canals was apparently secondary to the cutaneous process in this case.

MERCURIAL STOMATITIS AND NODOSITIES FROM GRAY OIL. MILIAN, Bull. Soc. franç. de dermat. et syph. **33**:653, 1926.

Milian contends that the toxic signs are due to the absorption of old deposits of the drug, caused by faulty technic of injection.

IS THERE A ZOSTER DUE TO BISMUTH? SEZARY, PERNET and GALLERAND, Bull. Soc. franç. de dermat. et syph. **33**:654, 1926.

Two cases are reported: In one, the eruption appeared while bismuth was being administered, and in the other forty-eight hours after a bismuth course had ended. There were no general symptoms, pain was absent and scarring did not result.

A CASE OF ZOSTER FOLLOWING TREATMENT WITH BISMUTH. MARTINEAU, Bull. Soc. franç. de dermat. et syph. **33**:657, 1926.

This intercostal eruption was painful and accompanied by fever.

ERYTHEMA MULTIFORME AND RADIOTHERAPY OF THE TRUE SYMPATHETIC. GOUIN and BIENVENUE, Bull. Soc. franç de dermat. et syph. **33**:657, 1926.

Following their apparent success in treating lichen planus in this way, the authors have tried applications of suberythema doses of roentgen rays over

the cervical and dorsal spine in various dermatoses. Nine cases of erythema multiforme are reported, in which the treatment was followed by disappearance of the eruption. Recurrences were not prevented.

Occupational Dermatitis of the Hands and Forearms in a Picker of Celery. Legrain and R. Barthe, Bull. Soc. franç. de dermat. et syph. **33**:662, 1926.

An erythematovesicular eruption appeared after the man had been at work for ten days; it disappeared when he stopped working, and there was a fresh outbreak when he went back to work.

The Intradermal Reaction in Chancroidal Manifestations, with the Anti-streptobacillus Vaccin of Nicolle and Durand. J. Nicholas, Jean Lacassagne and N. Alcalay, Bull. Soc. franç. de dermat. et syph. **33**:664, 1926.

This reaction was found to be positive in a high percentage of cases showing chancroids and complications, and also in patients who had had chancroids several years previously. Positivity first appeared about the eighth day of the infection.

Basal Cell Epithelioma of the Nasal Lobule, in the Form of a Giant Pearl. J. Gate and G. Massia, Bull. Soc. franç. de dermat. et syph. **33**: 668, 1926.

In a man, aged 50, this peculiar nevus-like nodule had been present for two years. The histologic observations are described.

Repeated Facial Edema Following Neoarsphenamine Administration, and Later Following Bismuth. J. Gate, Bull. Soc. franç. de dermat. et syph. **33**:671, 1926.

The use of the first drug was abandoned, and the same ill result followed when bismuth was substituted. The patient was a woman, aged 30, with syphilis of three years' duration.

Attention to the Hydroxides of Bismuth: A Large Abscess Appearing Late, Due to a Radiferous Hydroxide of Bismuth. A. Levy-Bing and R. Barthelemy, Bull. Soc. franç. de dermat. et syph. **33**:673, 1926.

These accidents, apparently not due to infection, had been absent for some months, but the authors now report a severe case, with general toxic symptoms, following a course of injections. The discussion is interesting.

Lupus Erythematosus of the Palpebral Conjunctiva. C. Audry, Bull. Soc. franç. de dermat. et syph. **33**:679, 1926.

This occurred in a case of facial involvement, in a woman, aged 23.

Fever Accompanying a Syphilitic Chancre. C. Laurentier, Bull. Soc. franç. de dermat. et syph. **33**:680, 1926.

The chancre was seen on a physician's finger, and the rectal temperature, for eight days, was between 38 and 38.8 C. The Wassermann reaction was strongly positive, and there was not an eruption. The epitrochlear lymph node could not be felt. The febrile reaction occurred two months after the date of infection and one month after the appearance of the chancre.

VITILIGO OF THE MUCOSAE. COULON and ESQUIER, Bull. Soc. franç. de dermat. et syph. **33**:681, 1926.

The depigmentation occurred on the lower lip in a negro, as well as on the skin.

PARKHURST, Toledo, O.

LUPUS VULGARIS AND CONGENITAL SYPHILIS. G. VERROTTI, Arch. ital. di dermat. e siphil **1**:522 (July) 1926.

According to the author patients with hereditary syphilis show a marked predisposition to tuberculosis. In some cases the syphilitic skin lesions of these patients follow a peculiarly torpid course. In other cases there is a real mixed infection of tuberculosis and syphilis. In most cases there are syphilitic and tuberculous lesions or tuberculous lesions alone, each following its own course in the same patient.

SYPHILIS OF THE LIVER. G. ARENA, Riforma med. **42**:937 (Oct. 4) 1926.

The author reports a case of enlarged liver with chronic icterus, resembling a malignant tumor. The patient had a history of syphilis several years before, his children had syphilitic stigmas and his blood Wassermann test was strongly positive. Treatment with injections of bismuth soon improved and apparently cured the patient.

BISMUTH IN THE TREATMENT OF SYPHILIS. B. SPARACIO. Riforma med. **42**:989 (Oct. 18) 1926.

The author considers bismuth as a direct spirocheticidal, slightly less active than the arsenobenzols. He has found bismuth in the spinal fluid of practically all the patients treated.

CRYOTHERAPY IN THE TREATMENT OF ANGIOMA. G. VENTURELLI, Riforma med. **42**:1039 (Nov. 1) 1926.

The author reports several cases of angiomatous nevi of the face in children, which were cured by applications of carbon dioxide snow. He considers this method superior to all others in this condition.

IDIOPATHIC CUTANEOUS SARCOMATOSIS. M. ABERASTURY, Bol. d. Inst. de med. exper. **13**:641, 1926.

During his thirty-four years of dermatologic practice, the author has observed in Buenos Aires, all clinical forms of sarcoma of the skin. He summarizes his cases in a most interesting monograph in which he describes the following types: Kaposi's pigmented sarcoma; Piffard's sarcoma, similar if not identical to Kaposi's; Unna's sarcoma, a fibrous type of spindle shaped cells arranged in whirls; the Funk Hyde sarcoma, an alveolar type with mixomatous degeneration; melanotic sarcoma; Newmann's sarcoma, and finally the Perrin type of highly malignant sarcoma.

PARDO-CASTELLO, Havana.

OIDIOMYCOSIS FOLLOWING TREATMENT WITH MOIST DRESSINGS. H. BIBERSTEIN and S. GRÜNMANDEL, Arch. f. Dermat. u. Syph. **152**:189 (Nov. 13) 1926.

Biberstein and Grünmandel report a case in which a pustular eruption of fungous origin developed on both lower extremities, following application, over a period of weeks, of aluminum acetate dressings. The patient, a man,

aged 34, was being treated for thrombophlebitis. On discontinuing the moist dressings, the pustules, which were disseminated and small, healed. Under the microscope a budding fungus was detected in the skin over the pustules and in the contents of the latter. The same organism was cultured from the healthy skin of the breast and from beneath the nails. The reaction of a vaccine prepared with the fungus was positive in the patient, negative in other persons. It is probable that the fungus lived on this man's skin as a saprophyte and that it took on a pathogenic character because of the maceration of the skin by the moist dressings.

METABOLISM AND THE SKIN. E. PULAY, Arch. f. Verdauungskr. **39**:13 (Oct.) 1926.

From chemical analysis of the blood of patients with various dermatoses, Pulay affirms that there is a close connection between the electrolytes and pathologic skin conditions. All of the eight cases of eczema presented a disturbance in electrolyte equilibrium. The deviations from the normal were not, however, always in the same direction. The total calcium was increased in three cases, decreased in two; the magnesium index was raised in three and lowered in three. Nine cases of urticaria were analyzed. Here, too, was seen a disturbance in the metabolism of calcium and magnesium, also in purine metabolism. There was hyperglycemia in 50 per cent of eight cases of psoriasis. The total calcium, determined in nine cases of psoriasis, was increased in two, decreased in three; magnesium was increased in four, diminished in two. In thirty-two cases of dermatoses, an antagonism between the total calcium and magnesium was observed in ten, between free calcium and magnesium in nineteen. The total calcium and potassium were determined in twenty-two cases; in four (in three of which both were normal) their behavior was similar, in four they presented antagonistic variations. Antagonism was shown in thirteen of nineteen cases examined for free calcium and potassium. Experiments in the therapeutic application of the results of these studies met with gratifying results.

BIOCHEMISTRY OF TUBERCULOSIS OF THE SKIN. N. MELCZER, Dermat. Wchnschr., supplement, **83**:1859 (Dec. 25) 1926.

Using Róna-Michaeli's tributyrin method, Melczer determined the lipase content of the skin in sixteen persons of both sexes and various ages suffering from lupus planus, tumidus or exulcerosus, also in five patients with tuberculosis verrucosa cutis. The lipase ferment was markedly diminished in all the cases.

OPOTHERAPY OF PSORIASIS VULGARIS BY MEANS OF DIATHERMY. R. VON LESZCZYŃSKI, Dermat. Wchnschr., supplement, **83**:1877 (Dec. 25) 1926.

Leszczyński reports excellent results from diathermy of the thymus in seven of eight cases of psoriasis. The cases were all particularly stubborn and the lesions covered the entire or nearly the entire body. In order to exclude the thyroid and the parathyroids from the influence of the current, the active electrode was placed beneath the interclavicular notch, the neutral electrode between the scapulae and parallel to the spine. From 700 to 1,200 milliamperes were used. The treatments were given daily and each lasted ten minutes at the beginning, later fifteen and twenty minutes. As soon as tachycardia gave evi-

dence of stimulation of the thyroid, they were discontinued until the pulse was normal again. He considers diathermy more reliable for gland stimulation than roentgen-ray therapy or administration of glandular extracts. The time required for the cure of psoriasis varies from five to twelve weeks, according to the stage of the disease. For large, old patches, local treatment with roentgen rays may advantageously supplement diathermy.

MENOTOXICOSES AND THEIR TREATMENT BY AUTOHEMOTHERAPY. A. I. MALININ, Dermat. Wchnschr., supplement, **83**:1881 (Dec. 25) 1926.

Malinin reports the cure by autohemotherapy of two severe and stubborn cases of acne vulgaris of the face, which appeared regularly two weeks before menstruation and diminished, but did not disappear, with it. In both the trouble dated from the first menstruation. One patient was a girl, aged 14, who began to menstruate at 11 years, the other a woman, aged 33, whose first menstruation was at 14. In this case, the eruption disappeared after her marriage, to reappear four years later at the beginning of her first pregnancy. In both instances he considers the eruption an evidence of menstrual toxicosis.

HYPERTONIA IN SYPHILIS. C. WOLFF, Dermat. Wchnschr., supplement, **83**:1911 (Dec. 25) 1926.

Among 160 patients with syphilis, representing all stages, Wolff failed to find one with clearly demonstrable essential hypertonia. It would appear that hypertonia in syphilis is rarely of functional origin, but is, as a rule, secondary to occult organic changes in the vascular system.

CARPENTER, Chicago.

DERMATOLOGIC ABSTRACTS

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

ITCHING IN ECZEMA. S. ROTHMAN, Arch. f. Dermat. u. Syph. **150**:489 (July 1) 1926.

Sensitivity tests made by Rothman on eczematous skin showed hyperalgesia, increased itching sensation and a strong tendency for the pain and itching to extend in time and space. The eczematous changes in skin do not cause itching but rather an exaggerated tendency to react by itching to otherwise negligible stimuli. Sympathetic nerves do not, so far as we know, participate in the origin of pruritus.

HYPERSENSITIVENESS AND HYPOSENSITIVENESS IN ALLERGY. R. DOERR, Arch. f. Dermat. u. Syph. **150**:509 (July 1) 1926.

Doerr shows that the toxic effect produced by injection of actinocongestin in the dog is due, not to the toxicity of the substance, but to the neutralization processes in the body. Hypersensitiveness is to be understood as an antigen-antibody reaction, which represents the real agent in cell destruction. Hyposensitiveness is debilitated reactivity against a certain agent. He suggests that the term hypersensitiveness should be replaced by "cytotoxic allergy."

Society Transactions

BROOKLYN DERMATOLOGICAL SOCIETY

Regular Meeting, Sept. 20, 1926

BINFORD THRONE, M.D., *Presiding*

A CASE FOR DIAGNOSIS (MYCOSIS FUNGOIDES?). Presented by DR. WALZER.

J. G., a married man, a laborer, for eight years had had a lesion on the right side of the body between the iliac crest and the ribs, which he attributed to the wearing of a belt which rubbed a great deal on that side. It began with the appearance of a red patch which gradually increased in size. There was not any pain but some itching. The patient discarded the belt six months after the patch appeared, but it persisted and grew larger with increasing infiltration. The patient said that he had never had any marks of any kind on that spot previous to the irritation by the belt. The lesion was a transverse, smooth, elevated, sharply outlined, palm-sized, infiltrated, dark red patch. Within the patch was a large, irregularly shaped stellate scar. To the left of the lesion, there was a lighter pink area. Within the right edge of the patch there was a punched out, exudative, irregular oval ulceration, about ¾ by 1 inch (1.9 by 2.5 cm.). Along this edge of the lesions there were numerous, scattered, pinhead sized, follicular, erythematous lesions.

DISCUSSION

DR. CHARGIN: While mycosis fungoides is to be considered in the differential diagnosis, I strongly favor the diagnosis of epithelioma. The picture seems fairly typical. There is a history of repeated trauma, the lesion has lasted for a long time and the border is hard. Against the diagnosis of mycosis is the duration of a single lesion, the lack of tumor formation and the hardness of the border. I suggest that a biopsy be made.

DR. ABRAMOWITZ: I am reminded of a patient I saw last spring in whose case various diagnoses of epithelioma, sarcoid and sarcoma were made, but mycosis fungoides was not mentioned at that time. The patient had a lesion on the breast, and the biopsy revealed mycosis fungoides. This case looks very much like that one. I think the only way of making a definite diagnosis in these cases is by studying a section of the lesion.

DR. THRONE: I am inclined to think it is a case of mycosis fungoides but, of course, the duration is against such a diagnosis.

MACULO-ANESTHETIC LEPROSY. Presented by DR. THRONE.

C. S., a boy, aged 10, born in Dutch Guiana, and having lived in the United States for seven years, presented an eruption of four years' duration. On the right thigh there were two irregular circinate lesions, brownish red, distinctly elevated and of a granulomatous character. On the left calf the remains of a similar lesion were seen. On the face, trunk and limbs, there were indefinite depigmented areas. In the region of some of the lesions there was slight anesthesia. The ulnar nerves were markedly enlarged. The interosseus muscles of the hands showed atrophy. The left hand showed the beginning of the

condition called "main en griffe." The patient was treated with chaulmoogra oil by mouth and antimony arsphenamine intravenously, once a week, and showed moderate improvement. The infiltration in the lesions on the right thigh, particularly, diminished.

DISCUSSION

DR. BEST: I know something of the history of this patient. I saw him about four years ago, when he had his first lesion. At that time he showed a small patch, about the size of a half-dollar, over the right tibia, which looked like vitiligo. In a child so young, it was difficult to determine anesthesia, but there did seem to be a disturbance of sensation. The patient at that time did not show any other evidence of the disease. However, I regarded the case as one of leprosy. After about two years without any treatment, this lesion disappeared. Last February his father brought him to me, and he presented two patches about the same as those you saw this evening. The point which I want to make is the fact that the eruption disappeared without any specific treatment, and that then, after he was free from any lesions for about a year, new lesions which are typical of the disease developed on the thigh.

DR. ABRAMOWITZ: Of course, it is known that lepra bacilli are rarely found in the anesthetic type. It is always a good plan, in these cases, and even in the nodular type, to give the patient a course of potassium iodide. Dr. Best's information that the lesions had cleared up without any treatment is interesting. The best results of treatment are obtained in the very early cases and in younger people. At the Vanderbilt Clinic, there was a case of nodular leprosy in a young boy about 8 or 9 years old, who showed remarkable improvement after chaulmestrol injections.

A CASE FOR DIAGNOSIS (CHANCROID?). Presented by DR. ABRAMOWITZ.

Eli L., aged 40, a native negro, single, a timer of race horses, by occupation, did not give a history of urethritis or previous genital sores. One year before he had been operated for anal fistula and made a good recovery. The present lesion, located behind the corona of the penis, was of four weeks' duration and appeared two or three days after the last exposure. He had applied iodine and other remedies and had seen two physicians, but had had no tests or injections. The lesion almost encircled the penis, it was soft, was no more than 1¼ inch (3 cm.) in diameter and had sharply defined edges. There was an ulcerated surface with a single pea-sized islet of normal skin in the center. There was profuse discharge and some pain and tenderness. Enlarged glands were not present. Two dark-field examinations for spirochetes gave negative results, and Ducrey's bacilli and Donovan bodies were not found. The Wassermann reaction was four plus. He had received three injections of 0.6 Gm. of neoarsphenamine and three injections of bismuth potassium tartrate, 0.2 Gm. each. Locally a bland powder had been applied. In a little over two weeks a slight but definite improvement had been noticed, but the lesion evidently was not syphilitic. Smears for Vincent's organism, tubercle bacillus and *Bacillus venereogranulomatis* (Peck) were all negative. Dr. Peck had provided some vaccine, which he used in his work on granuloma inguinale, for further testing and treatment, if necessary.

DISCUSSION

DR. CHARGIN: I do not wish to offer a definite diagnosis but it seems to me that syphilis must be ruled out before considering granuloma inguinale. The lesion is clearly not a chancroid. The ulceration is rather superficial and

shows a clear floor, and the patient presents a positive Wassermann reaction — all at least suggestive of syphilis.

DR. SKEER: The patient stated that the lesion started like a hair line, and that the surrounding sores developed later and seemed to grow into one. I do not know how true this is, but since smears for Vincent's organism and the tubercle bacillus were negative, I am inclined to think of chancroid.

DR. GRAHAM: Without the microscopic examination I would consider Vincent's disease seriously, but I am not sure that a negative smear would rule this out entirely. I had a patient once in whom the Vincent's organism could not be found for some time; but finally it was found, and the patient was cured with arsphenamine.

DR. GAUVAIN: I was not able to make a diagnosis. The discussion of this patient brought to my mind a colored man, presented from the Kings County Hospital, who had a lesion on the shaft of the penis, extending up over the pubes and back over the perineum, which was first diagnosed as a gumma. He had a four plus Wassermann reaction and was treated for some time as a syphilitic patient. The Wassermann reaction became negative, but the lesion did not heal. Donovan bodies were found later. He was given considerable tartar emetic, intravenously and by mouth. The lesions finally healed, but they recurred. He is now being treated with sodium antimony thioglycollate. The effect seems to be better than with the tartar emetic, and the reactions have been a great deal less severe.

DR. ABRAMOWITZ: Of course, it is known that a dark-field examination will often contradict clinical appearances. If the lesion is syphilitic, it is strange that three injections of neoarsphenamine and three injections of bismuth should have so little effect. Unless there is more rapid improvement I intend to start administering tartar emetic injections. I have also found sodium antimony thioglycollate to be better tolerated by the patient, and it does not cause thrombosis of the veins at the site of injection.

NOTE: Since presentation, the lesion on the penis has begun to heal. A percutaneous test of Dr. Peck's vaccine used in granuloma inguinale gave a negative reaction. An auto-inoculation on the thigh from the lesion on the penis gave a positive reaction five days later. It seems, therefore, that a chancroid in a syphilitic patient is being dealt with.

NODULAR CIRCINATE SYPHILIDE. Presented by DR. GAUVAIN.

E. W., aged 51, a married woman, whose husband was living and well, with four healthy children, experienced a fifth pregnancy which terminated in a full term still birth.

For the three months before admission she had had an area composed of small ham colored nodules, which area had increased in size until it was about 4 inches (10 cm.) in diameter. The periphery of the region was composed of two or three rows of these nodules, while those in the center had undergone involution, leaving pigmentation and parchment-like scars. There were small areas of similar nodules on the left arm and on the forehead. Scattered over the scalp were numerous discrete nodules of a like character. The Wassermann reaction was four plus.

ULCERATIVE NODULAR SYPHILIDE. Presented by DR. GAUVAIN.

This patient was presented Jan. 19, 1925, and the case was reported in the *Long Island Medical Journal*. The lesions healed promptly under the influence

of "mixed treatment," leaving considerable scar tissue. Many of the members had disagreed with the diagnosis. The lesions on the neck and over the scapula were treated surgically.

DISCUSSION

DR. BEST: The scar of the former tertiary syphilitic lesion is typical—a thin white parchment-like scar. It will be remembered that when this case was first presented with a diagnosis of syphilis, the diagnosis was rejected by most of those present. Every one said it was a case of carbunculosis.

DR. WALZER: I was one who strongly opposed the diagnosis of syphilis at the previous presentation. I still believe that the scars are not the result of syphilitic lesions, especially the large one over the scapula, with the keloidal linear scars running across the whole area. Its irregular stellate shape, with its keloidal character, is certainly not syphilitic, although a gumma on which there has been surgical intervention may produce any kind of a scar.

DR. BERKOWITZ: The scars are not so pigmented as is usual after the involution of syphilitic lesions.

A CASE FOR DIAGNOSIS—ARSENICAL DERMATITIS. Presented by DR. GAUVAIN.

A. G., unmarried, a butcher by occupation, twelve weeks before presentation, noticed a small, pigmented macule in the left inguinal region, which rapidly progressed into a large, slightly elevated, ovoid, definitely circumscribed, erythematous area, with small white scales around the periphery, and thick brownish scales in the center. Very soon, erythematous, pigmented, scaly macules appeared on the trunk and the flexor surfaces of the arms. There were not any subjective symptoms. The face, neck, scalp and legs were not involved.

There was a history of a chancre on the penis, and a secondary eruption on the body one year previously, for which the patient received six injections of arsphenamine.

The Wassermann reaction was negative on two occasions. It was also negative after a provocative injection of arsphenamine. The urine, blood chemistry and differential blood count were normal.

DISCUSSION

DR. GRAHAM: I think this is a case of arsenical dermatitis.

DR. SKEER: I think it is a case of dermatitis medicamentosa.

DR. GIVENTER: I agree with the diagnosis of arsenical dermatitis.

DR. CHARGIN: The pigmentation is strongly suggestive of arsenical dermatitis. The patient shows, in addition, slight keratosis of the palms, which is also suggestive.

DR. THRONE: There is not any question of the eruption having been produced by arsenic; but what caused the arsenic to be deposited in isolated patches, instead of causing diffused pigmentation? I think there must have been some inflammatory condition which had caused a disturbance of the blood vessels; this would have brought about a deposit of arsenic in these spots. I had a case in a boy, aged 2 years, at the Skin and Cancer Hospital, who had had leukoderma on the back, neck and trunk. He had had arsenical treatment, and when he was admitted for treatment at the hospital, there was an inflammatory, infiltrated, scaly border around the edges of the leukodermatous lesions.

Also, there were keratoses on the palms. The eruption has almost disappeared under injections of sodium thiosulphate. In any inflammatory condition there is usually a certain amount of increased pigmentation in the affected area, and arsenic, if ingested, is deposited in these areas, rather than becoming diffused throughout the entire skin.

DR. ABRAMOWITZ: I had a patient last year who presented a rash similar to this. The man had had syphilis for about two years. The pigmentation was due to the arsphenamine. In the case under discussion there is a lichenoid eruption and there are definite keratotic lesions of the palms. I think the patient will recover under injections of sodium thiosulphate.

LUPUS VULGARIS EXULCERANS. Presented by DR. ABRAMOWITZ.

Ruth K., aged 12, a private patient, was previously presented before this society at the April, 1926, meeting (ARCH. DERMAT. AND SYPH. **14**:351 [Sept.] 1926). Between April and June she received twenty-one injections of a gold compound supplied by Dr. J. F. Schamberg of Philadelphia. She also received 50 Gm. of gold chloride by mouth. Only a partial improvement was observed at the time of the last injection; after that she was sent to the Catskill mountains, where she improved steadily without treatment. The lesions on the face, with the exception of those on the forehead, were practically all healed having left raised scars, with many papilloma-like bodies which dropped off by themselves.

SCLEREMA NEONATORUM. Presented by DR. SKEER.

R., a white infant boy, aged 8 weeks, born of Jewish parents in the United States, developed an erythematous scaly rash all over his body, when he was 9 days old. Two days later the mother noticed that the skin of the lower part of the back and both buttocks was tense. This condition had remained to date and was progressing gradually. Over the entire lumbar region and extending down the backs of both thighs there was a firm, livid skin. The skin was not depressible with the finger and could not be folded. The tissues were indurated and boardlike. The calves of both legs and the left posterior part of the arm were involved also. At birth the child weighed 8 pounds, 5 ounces (3.7 Kg.). At presentation the infant weighed 10 pounds, 12 ounces (4.8 Kg.), and was gaining several ounces daily.

DISCUSSION

DR. ALTMAN: Although I do not disagree with the diagnosis, I think a roentgenogram of the buttocks should be made, to rule out myositis ossificans progressivum. The condition might be a myositis and, in that case, would show reticulation in the muscular tissues.

DR. ABRAMOWITZ: I thought when I saw this child it had a typical case of sclerema neonatorum. The fatty tissue is hard and there is not any pain.

DR. CHARGIN: I agree with the diagnosis as presented. The case appears to be typical, with the typical infiltration on the buttocks and on the upper arm. The process is regarded as a disturbance of the subcutaneous fat in young infants, which varies in composition from that in later life.

DR. WALZER: Regarding the relation of fat to scleroderma, in a recent number of the *Archives of Pediatrics*, Harrison and McNee reported some interesting observations. They studied five cases, four of which were fatal, and presented a study of these cases from both the histology and the chemistry

points of view. They found that the subcutaneous fat in infants with scleroderma has a higher melting point and a slightly lower iodine content than the corresponding fat of a normal infant. They also found that the subcutaneous fat in the infants with scleroderma contained a large amount of cholesterin, calcium and phosphorus. The histology, which they describe carefully, is that of a chronic inflammation. The authors suggest that there must be some connection between scleroderma and fat metabolism.

SARCOID (DARRIER-ROUSSY TYPE). Presented by DR. ALTMAN.

E. A., aged 34, a married woman, had pneumonia about four years previous to presentation, and she stated that at that time, she had received many hypodermic injections in the area of the present lesion. Several months later, she noted a small hard mass in the right thigh, which was neither painful nor tender and which slowly progressed in size.

On the right thigh, below the trochanter, there was a hand-sized nodular plaque, the skin over which was bluish red, and studded with openings, varying in size from that of a pinhead to that of a pea, which were filled with cheesy plugs. There were also about a dozen outlying, nodular lesions under the skin, the size of a hazel nut and smaller. The skin over these was not changed in color. All the lesions were painless. Many of the individual lesions broke down, causing large areas of ulceration. Treatment was administered using the quartz lamp, and arsenic by mouth. The lesions had healed and all of the plugs had disappeared, except for several small ones. The lesion had become much softer and lighter in color, under treatment. The Wassermann reaction was negative, and the histologic examination was reported as sarcoid.

DISCUSSION

DR. ABRAMOWITZ: I saw this patient in the early part of last summer, when there were numerous infiltrated patches, with the skin quite livid over them. These patches were not ulcerated, and the question arose whether paraffin tumors or sarcoids were being dealt with. I showed the section to Dr. Satenstein, and he would commit himself only so far as to say that the condition resembled sarcoid. I advise Dr. Altman to have tests made in order to exclude the possibility of tuberculosis. Sarcoids will sometimes disappear without any treatment.

DR. THRONE: I have seen these conditions disappear under arsenic therapy.

TERTIARY SYPHILIS AND PSORIASIS IN A MULATTO. Presented by DR. GRAHAM.

G. M., aged 33, a mulatto, whose mother was white and whose father was colored, was married at 16, and had four miscarriages. She was married a second time at the age of 22, and carried a fifth pregnancy to term. The baby was healthy, except for cataracts of both eyes. A sixth pregnancy miscarried at four months. The Wassermann reaction was four plus, and the patient has never had antisyphilitic treatment. The eruption began on the scalp four years previous to presentation. One year later a lesion developed on the left elbow, and subsequently lesions developed below each knee, and in the gluteal cleft. These lesions were oval, with white silvery scales, and no infiltration. There was considerable itching.

DISCUSSION

DR. BEST: Some years ago a series of patients with psoriasis were treated with arsphenamine at the Kings County Hospital, and one improved very

promptly. It was found out later, however, that the patient who recovered from psoriasis under arsphenamine treatment had a positive Wassermann reaction.

DR. ABRAMOWITZ: In a colored person who has psoriasis there is usually a mixture of white blood. This patient also shows the remains of a syphilitic scar. I do not think it is desirable to treat a patient who has psoriasis with arsphenamine. I had a patient last summer who was treated with it and she developed a dermatitis and almost died.

SCLERODACTYLIA. Presented by DR. ABRAMOWITZ.

Oscar H., aged 12, had been presented before the section on dermatology of the New York Academy of Medicine, several years ago, as having a case of acrodermatitis pustulosa hiemalis, because the history obtained from the mother was that the eruption recurred every winter, and because the eruption was of a definite pustular type with some resemblance to frost bite. Last spring, Dr. Persky showed this patient before the Brooklyn Dermatological Society, when the boy presented a definite scleroderma of the fingers and toes. At this presentation he also showed a marked sclerodactylia with several nails discolored and a somewhat pinched appearance of the face. Under massage and baking, the condition improved somewhat. Small doses of thyroid and pituitary extract were also administered. Roentgenograms of the bones of the hands and feet, as well as of the skull, gave negative results.

DISCUSSION

DR. ABRAMOWITZ: The patient was presented tonight to show that he still had a marked sclerodactylia of the hands, with involvement of the toes, and some atrophic lesions on the soles. This was the first time I had seen this patient during warm weather. I saw him during two winter seasons and he stated that he was usually much better in the summer, but evidently this is not true. The diagnoses that have been suggested in this case were epidermolysis bullosa and acrodermatitis (Crocker).

DR. CHARGIN: It is interesting that the patient shows the atrophy of acrodermatitis atrophicans on the legs.

MINNESOTA DERMATOLOGICAL SOCIETY

Regular Meeting, Oct. 6, 1926

PAUL O'LEARY, M.D., *President, in the Chair*

MELANOCARCINOMA. Presented by DR. BOREEN.

R. G., aged 20, a University student, was presented at the April meeting with a lesion on the upper part of the left arm. A dark pigmented area had enlarged in size over a period of ten months, until at the time of presentation there was infiltration extending 2½ cm., with some ulceration in the center. There was not any evidence of metastasis in the long bones.

The lesion was excised down to the muscle by wide incision. Since then twelve deep roentgen-ray treatments have been administered. Evidences of metastasis are not seen at present, six months after the operation.

The pathologic report was very malignant melanocarcinoma.

DISCUSSION

DR. SWEITZER: I think the prognosis is unfavorable and consider that several years must elapse before the patient can be considered cured.

DR. MONTGOMERY (by invitation): Melanomas or melano-epitheliomas vary a great deal in their relative malignancy. As Broders has shown, the more deeply pigmented a melano-epithelioma is, the greater is the degree of differentiation of its cells and the less its malignancy. Deeply pigmented melanomas have been known to exist for many years without metastasis. In this case there was marked pigmentation both clinically and microscopically and therefore, an early recurrence should not be expected. At least three years should elapse before a cure is pronounced.

A CASE FOR DIAGNOSIS. Presented by DR. SWEITZER.

A girl, aged 12, presented lesions, of which the first, seen on the arm one year before, was still present. The lesions became larger, spreading peripherally. There were lesions on the legs at presentation. These lesions were raised, with centers clear and the periphery dark tan to brown. There was slight scaling on some of the papules.

DISCUSSION

DR. SWEITZER: This little girl was sent into the General Hospital and my first impression was that she had a toxic eruption from phenolphthalein. On later observation I noticed that the lesions were fairly thick, so the possibility of granuloma annulare, erythema multiforme and sarcoid, or some form of tuberculosis was considered. Finally, a biopsy was arranged for, and therapy was not instituted. The biopsy was done on an old lesion on the dorsum of the foot, and this was sent to the university. Dr. Michelson said that the section showed tuberculosis, but I have never seen cutaneous tuberculosis with this clinical picture. The case is presented for diagnosis.

PROFESSOR GANS (by invitation): I remember a case reported by Dr. Hauser (*Arch. f. Dermat. u. Syph.* **128,** 1920) that resembles this case. The examination of the microscopic section warrants a diagnosis of tuberculid en plaque. I do not believe that granuloma annulare is a prominent diagnostic possibility because of the histologic picture.

DR. MICHELSON: I examined the tissue from this case before seeing it clinically and found a rather deepseated tuberculoid reaction which had the characteristics of a tuberculosis. I have never seen a case similar to this one and am glad that Professor Gans has referred to some literature, which I shall immediately investigate.

DR. GOECKERMAN: In view of the opinion of Professor Gans on the tissue, I hesitate to say that I feel that this is a case of granuloma annulare. I should like to know what treatment has been administered so far.

DR. OLSON: Clinically, the patient showed ringed or annular plaques with clearing centers, as found in granuloma annulare. Histologically there was a definite picture of a tuberculid, with many giant cells.

DR. SWEITZER: I had an idea of treating the patient with neoarsphenamine.

DR. O'LEARY: From the clinical appearance of the lesions presented in this case, I received the same impression as Dr. Goeckerman; namely, granuloma annulare. The biopsy did not help me to confirm this impression or to arrive at any other conclusion.

NEUROTIC EXCORIATIONS OF THE SCALP. Presented by DR. MICHELSON.

An unmarried girl, aged 20, stated that some two years previously she had had peculiar sensations in the scalp, which could be described as a burrowing in a fixed spot. There was no change in the scalp over these spots. She got relief only by gouging out small areas corresponding to the spot at which the subjective symptoms originated.

At the time of presentation there were numerous excoriations about 0.5 by 1 cm. in size in various stages of healing. Some of the areas were covered with bloody crusts while others were perfectly smooth white scar tissue. In the scarring areas there was total alopecia. There was no effort on the part of the patient to malinger. The patient had improved greatly after the condition was explained to her, and she was making every effort to desist from excoriating other areas.

DISCUSSION

PROFESSOR GANS (by invitation): I am interested to hear the diagnosis of neurotic excoriations of the scalp. It is unusual to find the spots so extensive and atrophic in this type of disease.

DR. MICHELSON: This is the first case of neurotic excoriations confined strictly to the scalp that I have seen. I wish to call Professor Gans' attention to the fact that the diagnosis of neurotic excoriations is being made much more frequently in America, than is reported in the Continental society transactions.

LUPUS ERYTHEMATOSUS OF THE SCALP. Presented by DR. MICHELSON.

A woman, aged 48, stated that about a year before areas developed in the scalp which were sharply circumscribed and covered with an adherent gray crust. The areas did not exude, but they itched considerably. At the time of presentation there were three or four large plaques on the scalp which appeared to have a deep, red base and were covered with a firmly adherent gray flecklike scale. The hair in these areas was decidedly thin but there was not total alopecia. There were two small areas on the forehead which were bluish and sharply outlined, and showed dilated follicles, but not atrophy. Treatment of an antiseborrheic nature had not been of any avail.

DISCUSSION

DR. IRVINE: I think that when conditions are seen which resemble small seborrheic patches that remain over a period of months and do not get well, even if atrophy is not present, a diagnosis of lupus erythematosus is justified. I should be inclined to that diagnosis in this case.

DR. O'LEARY: I believe this patient presents two distinct types of lesions. The one just below the inion is a neurodermite, or lichen simplex chronicus, while the patch in the temporal region shows epithelial plugging, atrophy and scaling distinctive enough to warrant the diagnosis of lupus erythematosus.

EPITHELIOMA IN LUPUS ERYTHEMATOSUS. Presented by DR. MICHELSON.

A man, aged 50, had had chronic discoid lupus erythematosus for a number of years. A destructive epithelioma had developed in the center of a patch over the right ear. The man's general condition was decidedly undermined and the prognosis was bad.

DISCUSSION

DR. O'LEARY: In my experience this is not an unusual sequence of events —an extensive lupus erythematosus with considerable roentgen-ray treatment and an extensive cauliflower-like epithelioma in this region. The frequency with which this picture is seen is one of the reasons why I avoid the use of the roentgen ray on the local patches of lupus erythematosus.

BASAL CELL CARCINOMA. Presented by DR. SWEITZER.

A man, aged 74, presented a nodular growth at the outer canthus of the left eye, with ulceration and crusting. The lesion first appeared six months before. It cleared up to some extent and then recurred.

PARAPSORIASIS. Presented by DRS. IRVINE and TURNACLIFF.

O. E., a man, aged 52, married, presented lesions on the trunk, arms and legs. They had been present for two years, starting on the arms. The lesions consisted of variously sized and shaped scaly yellowish brown plaques, with a fine scaling. The diagnosis was parapsoriasis.

DISCUSSION

DR. IRVINE: I made a diagnosis of parapsoriasis but, on account of the rather unusual appearance of the lesions and the rather bizarre appearance and distribution, mycosis fungoides should be considered.

PROFESSOR GANS (by invitation): Extensive cases of eczema seborrheicum are often seen which do not, however, resemble the case presented. There is a yellow center in the seborrheic spots, which are not very much elevated above the skin. The man has no eczema. I agree with the diagnosis of parapsoriasis en plaque.

LICHEN PLANUS HYPERTROPICUS. Presented by DR. SHAPIRO.

G. S., a man, aged 50, presented lesions on the outer aspect of the left leg between the knee and the ankle, of some twenty years' duration. Most of the lesions appeared to be prominent conglomerations of papules, which stood out quite prominently from the surrounding skin. They felt hard as though very much infiltrated, and they were dry. The color was a bluish red. The skin was shiny, and in places there were closely adherent, fine, white scales. In places these lesions were grouped to form ridges or lines; in other places they were grouped to produce more or less of a circle. The itching was indicated by the amount of scratching of the lesions, the caps that covered them having been scratched off leaving a bleeding surface. In other places old lesions had involuted, leaving a thin atrophic skin which was white, smooth and soft.

DISCUSSION

DR. SHAPIRO: This is a marked case of lichen planus hypertrophicus of years' duration. There is a good deal of itching. The patient also had lesions in the mouth. He cannot tolerate mercury. Two injections were administered, and he became salivated, so it was necessary to stop. Further treatment was delayed until the patient could be presented. I think I shall use the roentgen ray from now on.

PYOGENIC GRANULOMA. Presented by DR. SWEITZER.

A boy, aged 8, presented a nodular growth on the forearm which was 1 cm. in diameter and was slowly increasing in size. It had been present one year. At times it ulcerated and discharged purulent to bloody-purulent fluid.

DISCUSSION

DR. SWEITZER: The case was presented merely because it was so marked.

TUBERCULOSIS VERRUCOSA CUTIS (TWO CASES). Presented by DR. SHAPIRO.

CASE 1.—A girl, aged 9, presented lesions, of nine years' duration, on the left foot over the inner surface and on the sole. There were three areas which were definite in outline; the center was clear, consisting of a scar tissue, while the edges were round, raised, rough, dry, scaly and made up of small papules. The scar in the center was thin, pliable and a light color. In other spots there was a little dry, reddish pigmentation. The patient had scars also on the outer surface of the foot and some on the back of the right thigh. In addition there were some on the left elbow and another one on the right elbow.

CASE 2.—G. B., a boy, aged 10, presented lesions of four years' duration. At presentation there was a lesion on the back of the left heel, one on the back of the right thigh, one on the thumb of the left hand and one on the middle finger of the right hand. The lesion on the heel was a prominent raised granuloma. It was reddish and quite protruding, and consisted of soft, reddish white tissue, irregular on the surface and covered with glistening, thin, capsule-like membrane. The edge of this lesion showed a dark pigmentation. The lesions on the thigh were more flat, dry, scaly and crusted, and consisted of some conglomerate papules. The same lesions existed on the fingers. The patient had a scrofuloderma on the right side of the neck with a marked, disfiguring scar.

DISCUSSION

DR. SHAPIRO: These patients show tuberculosis of the verrucosa cutis type. Both cases started with scrofuloderma. Various kinds of treatment have been administered. The patients are inmates of the St. Louis County Sanatorium. There is some repression of the lesions, but they are far from cured. Biopsy showed typical tuberculous structure.

PROFESSOR GANS (by invitation): The clinical differences in the tuberculous diseases of the skin are more or less due to the degree of immunity of the infected body, as has been shown particularly by Jadassohn, Lewandowsky and Kyrle. Tuberculosis cutis luposa is seen frequently in my country. There are two clinical aids which may help in recognizing the disease. One is well known. One is to press a glass on the lesions to see whether the so-called "lupus spots" or "apple-jelly nodules" are present. Similar to them are the syphilitic maculopapular lesions and the so-called colloid degeneration of the skin which may often be found in the old lupus scars. The second aid is not so well known. A thin pointed probe is pressed against the suspected nodule. At first a resistance is felt, but if the pressure is increased, the tuberculous granulations are suddenly broken through, as through soft ice. The patient generally complains somewhat because this test is painful.

DR. MICHELSON: My personal experience with tuberculosis of the skin is not great, but I have frequently visited the Lupus Hospital in Vienna which is under the direction of Professor Volk, who always emphasized the fact that the patient himself must be treated as well as the lesion. I want to warn against overtreatment of the lesions. Tuberculosis verrucosa cutis is a self-limited, low grade form of tuberculosis which responds well to carbon dioxide snow freezing.

DR. SHAPIRO: I have tried that plan of general hygienic treatment. All local therapy was stopped, but without any improvement at all.

PROFESSOR GANS: In the treatment of tuberculosis, in my experience, tuberculosis verrucosa cutis is always thought to be cured by the roentgen ray. I endeavor to be cautious with the roentgen-ray treatments because I have seen many cases of roentgen-ray dermatitis and ulcers which are often the result of the careless use of the roentgen-ray. On the other hand, many of the diseases which dermatologists treat with the roentgen ray are not cured, only a transitory result being obtained. In the lupus vulgaris forms there is not any ideal remedy. The treatment of the elder Rheil, with pyrogallol caustic, is found to be very satisfactory. Surely, good results will be noted by general treatment — sunlight, good nourishment, etc. Tuberculosis verrucosa cutis is often benign. I give from one to one and one-half erythema doses at each exposure, with 3 mm. of aluminum or 0.5 mm. of zinc filter, and repeat this in six weeks. If the condition still persists the same dosage is repeated in another six weeks.

DR. MICHELSON: In the treatment of all tuberculosis of the skin, the time element must be measured in years, not months.

DERMATITIS HERPETIFORMIS. Presented by DR. MICHELSON.

A man, aged 40, stated that he had several attacks of skin eruption similar to the present one, which consisting of grouped vesicles making polycyclic figures, and was seen on the face, the back (especially over the scapular region) and the abdomen. The subjective symptoms were intense, there being pain as well as itching. The patient was improving rapidly under Alpine lamp exposures and a cinnabarsulphur lotion.

PITYRIASIS LICHENOIDES CHRONICA. Presented by DR. SWEITZER.

The patient, aged 28, presented a generalized eruption which had been present intermittently since 1916. The patient stated that the lesions began with subcutaneous nodules, followed by necrosis. The lesions healed by scarring. A previous diagnosis was papular necrotic tuberculid.

The present lesions were generalized scaling papules which had been present about one year.

DISCUSSION

DR. SWEITZER: This patient evidently had previous eruptions years ago as indicated by the repeated scarring on the body. He told me that Drs. Cook and Freeman called the eruption papular tuberculid; that he was presented before this society, and that all the members agreed on the diagnosis. Apparently this is a brand new eruption. I made a clinical diagnosis of pityriasis lichenoides chronica, which was confirmed by biopsy.

DR. OLSON: I do not agree with the diagnosis of pityriasis lichenoides chronica. I saw this patient about five years ago, when he was presented before this society by Dr. Freeman, and agreed with the diagnosis of papulonecrotic tuberculid. The necrotic lesions had all healed with scarring. About a year ago the patient developed a pityriasiform eruption with some fairly deep papules but without any necrotic lesions. It would be extraordinary for a patient to develop two rare skin diseases in so short a period. Pityriasiform eruptions are not very uncommon in patients with tuberculids, and the diagnosis in this case I believe is pityriasiform tuberculid. The microscopic appearance of the sections would not exclude a diagnosis of pityriasiform tuberculid.

DR. MICHELSON: After examining the patient and the section, I would make a diagnosis of pityriasis lichenoides chronica in this case. I wish to call Dr. Olson's attention to a varicella-like type of this condition which has a necrotic center and leaves scars. This type has been described by Oppenheim and others, and they have all warned against making a diagnosis of tuberculid.

DR. SWEITZER: The man who first looked at the section at the university told me that he knew it was not tuberculous.

IMPETIGO BULLOSA. Presented by DR. BOREEN.

H. A., aged 20, presented numerous lesions which were confined to the lower extremities. A number of the lesions contained clear serum and were surrounded by an erythematous halo. Other lesions were pustular.

ICHTHYOSIS WITH BULLAE. Presented by DR. SWEITZER.

The patient, a little girl, was presented at a former meeting of the society.

DISCUSSION

DR. GOECKERMAN: Patients like this one, it seems to me, are always interesting from a diagnostic standpoint, because they present such a variety of pictures on the skin. Some observers have grouped all such cases under dysgenetic diseases of the skin. This seems plausible. Is this case one of the types of ichthyosis, or is it an epidermolysis bullosae? One sees bullous eruptions in these disturbances that result from trauma. Then again, they seem to be more the result of a disturbance in the sweat glands. The condition in this patient definitely appears after she has been very warm from any cause, but she does not actually perspire. The point I would like to make is that one sees these bullae in various developmental defects, and that in some patients, as in this one, the anomaly is one affecting the sweat glands; probably an interference with normal perspiration by excessive cornification of the sweat ducts.

PROFESSOR GANS: This case is an exact picture of the dystrophic form of epidermolysis bullosa, which is a form of congenital dyskeratosis.

GENERALIZED EXFOLIATIVE DERMATITIS. Presented by DR. MICHELSON.

A man, aged 52, a farmer by occupation, said that for the last four months he had had an inflammation of the skin of the arms and legs, and that recently the inflammation had spread to his entire body and that he had lost some 20 pounds (9 Kg.). On presentation, the entire skin was in a state of exfoliation. The squamas were about 1 cm. in diameter and pure white, and when they were forcibly removed they did not leave an oozing surface. There was a general adenopathy. The blood picture was negative for leukemia. A gland had been removed from the groin, which showed some characteristics of Hodgkin's disease. A section from the skin showed only chronic inflammation.

DISCUSSION

DR. MICHELSON: In presenting a case of exfoliative dermatitis one hesitates in making any further diagnosis than a purely objective one; that is, it is difficult, without prolonged observation, to determine whether the exfoliative dermatitis was secondary to a benign process or a serious one. In the case presented I am inclined to think that the condition is merely secondary to a chronic eczema.

PARAFFINOMA. Presented by DR. MICHELSON.

A man, aged 64, said that seven years before he had submitted to an injection of some unknown substance beneath the skin of the cheeks. The injector did not tell him what was used, but told him that he was experimenting with materials for lifting the skin. At the time of presentation the tissues of both cheeks were firm to the touch and practically a disk of solid material could be lifted. Section showed a typical Swiss-cheese appearance, with chronic inflammatory reaction about the globules of wax. A few giant cells of the foreign-body type were found in the section.

DISCUSSION

PROFESSOR GANS (by invitation): Sometimes it is not borne in mind that, especially in the skin, there is a foreign body reaction which may look similar to tuberculosis. In the cases of paraffinoma there are large cavities which were formerly filled by the paraffin. If the section is fixed in formalin and stained with fat dyes, the remains of the paraffin may sometimes be seen; therefore, I do not think it probable to make a diagnosis of tuberculosis. The foreign body giant cells are irregular in their distribution, and there is not any relation to blood vessels or lymphatics.

DR. OLSON: Years after the injection of paraffin, solid particles of paraffin may be found in the tissues. I recall one case of paraffinoma of the nose and cheek in which, following a boil, particles of paraffin were discharged from the wound.

PROFESSOR GANS: Many patients were observed during the war who had been treated for syphilis with mercury salicylate suspension in paraffin which was not chemically pure, who showed this reaction.

KELOID ON THE CHEST. Presented by DR. MICHELSON.

This case was presented merely for therapeutic suggestions.

DISCUSSION

DR. SWEITZER: I would treat the patient with filtered radium.

PROFESSOR GANS (by invitation): Unna employs, in the treatment of keloids, a "digestion process." He uses a solution of 1 per cent pepsin in water and, because it is unstable, adds 2 per cent acid boricum. He applies this, covers it with an impermeable dressing over night, and washes it with soap and water the next morning. He then applies ointment or adhesive containing 1 per cent thiosinamin. This treatment is used for two, four or six weeks. It may happen that ulcerations will appear, which necessitate the stopping of treatment temporarily. What has been done so far with this case, and what are you generally accustomed to do?

DR. MICHELSON: I propose having the growth excised and treated with radium after the excision has healed. In answer to Professor Gans' question, I have not treated enough cases to lay down any rule for their handling.

DR. O'LEARY: I am pessimistic about the surgical excision of keloids, even those that have been treated with the roentgen ray. In fact, the majority of keloids seen are those that have, at some time or other, been excised and immediately recurred. Rather satisfactory cosmetic results have been obtained by the use of radium over a long period.

A CASE FOR DIAGNOSIS. Presented by DR. SWEITZER.

A man had lesions on the neck which had been present for several years. When the patient was first seen there was a circinate papular eruption on the neck near the angle of the jaws. This was symmetrical, and the lesions looked vesicular. The condition changed, and on later examination considerable scaling was noticed. A gland in the neck was enlarged; this was treated with deep roentgen ray.

DISCUSSION

DR. MICHELSON: I think that the background of this case should be explained. The man is trying to get government compensation and is anxious to get the members of the society to commit themselves on the tuberculous nature of his condition. I think that he should be put under close observation for a factitious element.

DR. SWEITZER: I made a diagnosis of erythema multiforme and administered salicylates. When the patient came back the condition had not improved. I noticed in the beginning an enlargement of the gland in the neck and this became larger and larger. The Wassermann reaction was negative.

DR. GOECKERMAN: The case certainly presents an interesting picture. I would at present hesitate to make a diagnosis of lupus erythematosus and yet, analyzing it, I feel that it shows an 80 per cent probability. I might classify it with lupus erythematosus sebaceus. That would be my best guess, but without further observation I would not feel that it was final by any means.

DR. SCHAEFFER: Is the gland in the neck a part of his endeavor to date his trouble back six or eight years?

DR. SWEITZER: The enlargement is. He had a large neck, but the gland seemed to enlarge. It went down under roentgen-ray therapy, but is still present. I think it was treated with the roentgen ray about one and a half years ago.

NOTE.—A biopsy was finally made, which showed lupus erythematosus.

D. D. TURNACLIFF, M.D., Secretary.

DETROIT DERMATOLOGICAL SOCIETY

Regular Meeting, Oct. 19, 1926

ROLLIN H. STEVENS, M.D., *Presiding*

COLLOID DEGENERATION. Presented by DR. WILE.

Mrs. K. F., aged 47, a Russian Jewess, had first noticed a lesion of the mid-forehead fifteen years previously, following trauma. At first there was a painful nodule, which almost entirely disappeared, and then gradually enlarged, attaining the size of a large coin. There had not been any increase in size for five years prior to the time of presentation, or any subjective symptoms. The nodule was flat, sharply outlined and of a dull erythematous color, with small blood vessels visible on the surface. It was fairly firm. The biopsy study revealed epidermic atrophy, numerous sebaceous cysts and colloid degeneration of the connective tissue.

DISCUSSION

DR. BREITENBACH: Under the microscope, the colloid degeneration was clearly evident.

DR. JAMIESON: Clinically, the lesion resembled a sarcoid.

DR. WILE: Sarcoid was the original diagnosis, but the histologic study disproved it.

EPITHELIOMA OF THE LIP. Presented by DR. STEVENS.

Mrs. M., aged 63, had first noticed a small patch on the mucous surface of the upper lip twenty-five years previously. At the time of presentation it had been growing for three years, had been painful for two years and had been ulcerated for one year; for one year there had been a swelling over the angle of the lower jaw. In May, 1926, a "cancer cure" had been administered by Dr. Koch.

LICHEN PLANUS LIMITED TO THE ORAL MUCOSA. Presented by DR. STEVENS.

Mrs. McL., aged 56, presented a delicate white network, of eight months' duration, especially on the sides and dorsum of the tongue, with a sensation of dryness and burning. There was a small denuded area on the right side of the tongue. The teeth needed attention. The Wassermann reaction was negative. Arsenic and roentgen-ray treatment had been administered, with some improvement of the condition.

LEPRA, MACULO-ANESTHETIC. Presented by DR. JAMIESON.

Mr. C., a Mexican, with seven children, presented slightly erythematous anesthetic plaques on the arms, cheeks and forehead. The ulnar nerve was enlarged.

SARCOID (?). Presented by DR. BIDDLE.

Mrs. E. J., aged 32, had had a slightly pruritic nodule on the right side of the forehead for two years. Its diameter was from 5 to 8 cm., and it was erythematous, with slight telangiectasis. Infiltration was more pronounced peripherally. Tincture of iodine had been applied four times, and the quartz lamp had been used five times, at weekly intervals.

DISCUSSION

DR. JAMIESON: I have seen this case before. There has been great improvement during the past four months. Its original appearance was typically that of sarcoid.

DERMATOPHYTOSIS INVOLVING THE NAILS. Presented by DR. SCHILLER.

M. H., aged 14, a schoolgirl, had had recurrent lesions on the hands for one year, and on the right foot for three months, in the form of erythematous, scaling patches. The finger nails had been first involved in May, 1926, and they were dry, thickened and cracked.

DISCUSSION

DR. WILE: The nail involvement is hard to cure. Complete avulsion of the nails has been tried lately. The nail regrows in from three and one-half to four months.

DR. SHAFFER: Good results may be obtained by applying a pledget, soaked with Fehling's solution, for twenty-four hours, the skin being protected by a coating of gelatin.

NEUROTIC EXCORIATIONS. Presented by DR. SCHLEGELMILCH.

Miss L. W., aged 36, had been excoriating her skin for about ten years. On the trunk, arms and legs there were many superficial ulcerations, pigmented spots and scars, the condition being more pronounced on the right side of the body. The patient was ordinarily right-handed. Latent neurosyphilis had been diagnosed from spinal fluid observations. Antisyphilitic treatment had been administered in 1917 and in 1925. The Wassermann reaction of the blood was negative.

A CASE FOR DIAGNOSIS. Presented by DR. STEVENS.

Miss M. G., aged 22, had first noticed a brownish area on the right thigh ten years previously, following a "severe nervous shock." The right leg, right side of the trunk, and the neck were subsequently involved, the involved patches stopping abruptly at the median line. Some of the spots showed signs of atrophy, with a few visible blood vessels.

DISCUSSION

DR. WILE: The patch on the leg gives one the impression of acrodermatitis chronica atrophicans, but that apparently is not the diagnosis; nor is it creeping angioma. The distribution argues for some neurotrophic condition.

DR. PARKHURST: At first this condition looked to me like a nevus unius lateris of late development, but now I am inclined to agree with Dr. Wile.

SYPHILITIC REINFECTION (?). Presented by DR. WANDER.

Mrs. A. N., aged 20, had first appeared on Feb. 2, 1926, with a generalized macular syphilid and a strongly positive Wassermann reaction. Her husband had also been infected. Following a course of treatment, the Wassermann and Kahn reactions became negative. A second course of treatment was finished on July 15. On October 19, she presented a generalized macular eruption, apparently syphilitic, with palpable enlargement of the lymph nodes. Her husband was still under treatment for the original infection. Her Wassermann reaction had not been reported at the time of presentation.

H. J. PARKHURST, M.D., *Reporter.*

CHICAGO DERMATOLOGICAL SOCIETY

Regular Meeting, Oct. 20, 1926

PAUL A. O'LEARY, *Presiding*

CONGENITAL HEREDITARY LEUKODERMA (CONGENITAL PARTIAL ALBINISM). Presented by DR. OLIVER and DR. FINNERUD.

The patients, supposedly full-blooded negroes, were a mother, aged 22, and her two daughters, aged 22 and 4 months, respectively. The mother was first seen at the Cook County Hospital shortly after her confinement. She had had no other children. She had one brother and one sister and the latter, now dead,

had the same markings. Her father, aged 45, had patches of achromia of almost identical distribution. The white patches of the scalp, abdomen and extremities had been present in each instance since birth. There was no history of consanguinity, and all had always been in good general health, with the exception of the brother, who died in infancy. History of the same disorder having been present in ancestors of the children's grandfather was inaccurate. In summary, five out of six persons making up three generations were similarly and almost identically affected.

The patients presented irregularly shaped, large white patches of achromia of the upper and lower extremities, in the vicinity of the elbows and knees and the middle third of the front of the trunk, and a coin sized patch of white hair at the midline of the scalp in front. The skin within these areas was of normal texture and there was not any peripheral hyperpigmentation. The white patches of the mother's forearms contained several small areas of pigmentation.

PITYRIASIS RUBRA PILARIS. Presented by DR. ORMSBY.

A child, aged 5, was first seen in September, 1925, with a disorder which was said to have been present since birth. When first seen the eruption was distributed in the same manner and extent as at present. During the year, under treatment with liquor arsenicalis, the skin had largely cleared, but the disorder had recently undergone an exacerbation. The scalp showed moderate scaling, and the ears and cheeks were dull red and covered with large scales. The dorsal surfaces of the hands and fingers were covered with follicular keratotic papules. A marked palmar and plantar keratosis was present. The knees and elbows showed thickening and scaling; the arms and forearms presented several scaling areas formed by the fusion of keratotic papules. The other members of the family did not present any similar conditions.

DISCUSSION

PROFESSOR GANS (Heidelberg): I am glad to hear that in this country pityriasis rubra pilaris is recognized as an entity, because the Vienna School still believes that pityriasis rubra pilaris is a special form of lichen ruber acuminatus. The histologic picture of each disease is so different that I am sure it is an entity which differs from the lichen acuminatus.

DISSEMINATED MILIARY TUBERCULOSIS. Presented by DR. O. H. FOERSTER and DR. H. R. FOERSTER.

A white man, aged 35, had developed a cutaneous eruption four months before, the first manifestation of which was a herpetiform lesion at the tip of the nose, which persisted. A week after the appearance of the initial lesion a red, papular eruption appeared in circumscribed patches over the malar prominences, between the eyebrows and on the bridge of the nose. These lesions appeared in crops. About five weeks later new lesions appeared on scattered areas of the face; some of these were pustular, and others were solid pinkish papules. About one month before presentation similar, though somewhat larger, erythematous macules and papules appeared on both extensor and flexor surfaces of the upper extremities and on the anterior surfaces of the thighs and knees. Constitutional symptoms were not associated with the appearance of the skin lesions and did not precede them.

The past medical history was entirely negative, except for a light attack of influenza three years before, pneumonia during infancy and at the age of 11,

and measles a year later. The father, mother and one sister were said to have died of cancer at the ages of 45, 65 and 75 years. The family history was otherwise negative.

The patient presented an eruption of nodules on the face, extensor surfaces of the upper extremities and anterior surfaces of the thighs, varying in size from that of a millet seed to that of shot. The lesions were uniformly small, discrete, translucent and brownish, most numerous on the chin, bearded area and nose, with scattered nodules on the cheeks, eyelids and forehead. The lesions on the extremities were large shot-sized, dull red nodules, and papules of sparse distribution. Roentgenograms of the lungs showed fibrosis in both upper lobes, but no evidences of an active tuberculous process, and there were not any physical signs of pulmonary disease.

A biopsy of a nodule from the chin showed a typical tubercle formation with a central area of necrosis in the cutis, surrounded by numerous giant cells and a peripheral infiltrate of polymorphous cellular elements, chiefly mononuclear and endothelioid cells in a stroma of degenerated and edematous collagen. A biopsy of a nodule from the forearm showed a granulomatous infiltrate in the cutis, chiefly about the hair follicles and sebaceous glands, consisting mostly of endothelioid and mononuclear cells. Special stains for tubercle bacilli failed to disclose the organism.

A Case for Diagnosis. Presented by Dr. Zeisler.

A woman, aged 28, presented nodular, yellowish brown grouped papules on the chin, nose, cheeks and nasolabial folds. The condition was said to have been present for two years and originally resembled rosacea. The white blood count was 13,400, reds 4,980,000, hemoglobin 89 per cent (Sahli).

The biopsy report from Dr. Schultz stated that it was probably a leukemic infiltration of the skin (possibly sarcoma cutis). The report follows: "A piece of tissue covered by squamous epithelium, with a thin layer of cornification, with a slight tendency to hyalization of some of the deeper layers of the cells. The tissue immediately beneath the epithelium is infiltrated widely by round cells which are invading the epithelium. The cells in this area are generally small with deeply staining nuclei and very little surrounding cytoplasm. Scattered about there are larger, paler, rather vesicular nucleated cells. Where these cells are closely packed together they seem to be forming connective tissue and assume a spindle-shaped outline."

DISCUSSION

Dr. Wile: I believe these are two unusual types of disseminated miliary tuberculosis, and that dermatologists are in a position to say that this can occur in the miliary form without running an acute fatal course. In the case presented by Dr. Foerster the microscopic changes were frankly those of tuberculosis, and in Dr. Zeisler's case some tubercles were present also. I do not believe that it is always proper to speak of these as noncaseous. I have had one case in which the primary lesion was in the tonsil and the patient was covered from head to foot with an eruption which resembled a variola, and the local lesions were all caseous tubercles. That man recovered in four weeks but he undoubtedly had miliary tuberculosis elsewhere.

Dr. Michelson: I think we have not accepted the pathologic classification of tuberculosis of the skin in the same way that they have in Europe. Professor Gans, in discussing a similar case which we saw in Minneapolis last week, brought out clearly the difference between the indurative type and the caseous type.

PROFESSOR GANS: I think the relation between the development of the different types of tuberculosis of the skin and the general immunologic reactions of the body is well known. Both patients show that there are special types of persons who are capable of curing tuberculosis, even though a hematogenous distribution of tubercle bacilli has occurred. These immunologic question have been raised by Jadassohn and the best paper written on the subject in Europe is the one by Kyrle, who showed that, when at first the tubercle bacilli appear in the blood stream, a so-called specific reaction of the skin does not develop, but rather a noncharacteristic reaction. Following the development of an immunologic reaction in the skin by the dissolved bacilli a form of so-called specific granuloma develops. This is seen not only in the tuberculosis but also in each case of chronic infectious disease of the skin (lepra, syphilis, blastomycosis, etc.).

DR. COLE: In regard to lepra, I was in Carville, La., several years ago and there were two or three cases which corresponded well to this one. The patients would be seized with an acute fever in some instances, and some would have a generalized eruption, but many of them were like the patient seen today. Thus, the generalization of a lepra and of a tuberculosis on the skin may simulate each other closely.

LICHEN PLANUS OF MUCOUS MEMBRANES ONLY. Presented by DR. HEDGE.

A man, aged 27, was first seen on July 24, 1926, because of oral lesions. The Wassermann reaction was negative. There were three round, depressed white patches about 4 mm. in diameter on the tongue, one situated on the right and two on the left side. On the inner surface of the cheek the eruption was composed of fine lines and dots with some irregular dots, which gave the picture of an early frost on a window pane. On September 15, the patient had his molars extracted, and as a result either of medication or of trauma deep red patches developed on the cheeks and gums about the site of the extraction. A dentist made a diagnosis of trench mouth. The irritation cleared up under irrigation with mild Dakin's solution, but the reticulated patches remained about the same. The patient had used various mouth washes and had received mercury by mouth and intragluteal injection. The condition of the tongue was markedly improved.

LICHEN PLANUS HYPERTROPHICUS. Presented by DR. BEESON.

A girl, aged 21, had a patch on the anterior surface of the right thigh, which had been present for fifteen years and was slowly increasing in size. The affected area was bandlike and measured about 4 inches in length and 2 inches at its widest point. It was bluish red, was composed of a number of fused lesions and presented closely adherent scales. Itching was present after a hot bath. The plaque was perfectly dry. The mouth and the rest of the skin did not show any lesions.

LUPUS ERYTHEMATOSUS (MUCOUS MEMBRANE LESIONS). Presented by DR. HEDGE.

A white man, aged 39, presented lesions of the oral mucous membrane which were difficult to diagnose because of the constantly changing appearance. The disorder began as a dry, scaling and later crusting lesion on the lower lip which had been present for about eight months. An ulcerated spot then developed on the left buccal mucosa, with a central stemlike pedicle about 3 mm. long by 1.5 mm. in diameter. The long axis of the ulcer surrounding this pedicle was perpendicular to the tooth line so that it could not have been produced by the teeth. As the ulcer healed, it left a central atrophic spot 4 mm. in diameter sur-

rounded by a definitely raised red border. During August, 1926, there developed a reticulated silvery dotted and lined patch, resembling frost on a window pane, in front of the old ulcer on the inside of the cheek. The patient seldom smoked or drank, and the blood Wassermann reaction was negative, although he thought that he had a chancre in 1912. Cheilitis exfoliativa, leukoplakia, lichen planus and lupus erythematosus had been considered in the differential diagnosis.

DISCUSSION

DR. FINNERUD: In the last case I think there can be little doubt about the diagnosis. The tongue was without involvement. To me it was lupus erythematosus.

DR. FOERSTER: I think Dr. Hedge's case was one of lupus erythematosus. There was a patch on the upper lip and a spreading fanlike patch on the mucous membrane of the left cheek presenting the characteristic features of that disorder. At times patients are seen with involvement only of the mucous membranes, including the conjunctiva. I have a patient now under observation in whom both lower lids show lesions typical for lupus erythematosus, associated with similar lesions on the vermilion of the lips.

RECKLINGHAUSEN'S DISEASE. Presented by DR. ORMSBY.

A woman, aged 56, said that the disorder had been present as long as she could remember. The usual pigmentations and tumor formations were noted, and in addition there was a large area of pigmentation in the sclerae. It was for the demonstration of the latter condition that the patient was shown. As incidental disorders she had xanthelasma and an interdigital mycotic infection.

DISCUSSION

DR. ORMSBY: I should like to know whether any one has seen pigment in the sclerae in this disorder, or whether this case is unique in that respect.

DR. WILE: I would suggest that the fundus be examined to see whether the pigmentation occurs in the choroid.

XANTHELASMA. Presented by DR. SENEAR.

A man, aged 66, presented yellow spots about both eyelids that had been present for the last seven to eight months. About three and one-half months before grayish spots appeared about both eyes to which he applied camomile tea as a wet dressing, each day for a week. The eyelids became swollen from these applications, the swelling disappearing in from three to four days. The patient said that other measures had not been used. About six years previously, he used a hair dye on his moustache, and an open sore developed on the left side and inner surface of the lip and lasted about two months. After that he developed bluish patches on the lower lip. For the last two years he also had had bluish patches on the buccal mucous membrane on the left side. The spots were tender and painful when he smoked a pipe. Lesions were present also on the hands and wrists, but the patient did not know how long they had existed.

Xanthelasma was present, almost surrounding both eyes. Also nearly surrounding both eyes were irregularly shaped, generally linear lesions, which were bluish gray and scaly and appeared depressed because the skin on either side was reddened and slightly edematous in appearance. Slight itching was present. The

vermillion border of the lower lip and mucous surface showed thickly placed grayish blue patches and lines. Grayish blue lines, patches and papules, making a network with a small, superficial erosion, were noted on the right buccal mucosa, with similar involvement, but to a slightly lesser degree, on the right buccal mucosa. On the left wrist there was a flat-topped polyhedral, slightly bluish papule. Scattered, smaller, dusky bluish lesions were present on the back of the left hand.

DISCUSSION

DR. ORMSBY: The case appeared to me to be lupus erythematosus.

DR. FINNERUD: That was my impression. When the skin was stretched about the eye lesions, the borders were suggestive of lupus erythematosus. The mouth lesions were, in my opinion, characteristic of lupus erythematosus.

DR. WILE: Is it practically certain that some one had not tried to treat the xanthelasma patches? If a caustic had been put over the lesions, they would present exactly the same appearance as this. Such a change occurring in the course of xanthelasma is unknown.

DR. SENEAR: The patient's daughter came in to interpret, and she was definite in her statement that nothing had been done before her father used the strong solution of camomile tea which produced a dermatitis venenata. That condition had subsided before I saw him.

DR. WILE: I am doubtful that lesions of lupus erythematosus would develop only in the patches around the lesions of xanthelasma. I thought the lesions in the mouth were lichen planus.

DR. COLE: The patient had several lesions on the backs of the hands and elsewhere that were suggestive of lichen planus.

KERATODERMA PALMARIS ET PLANTARIS. Presented by DR. OLIVER.

A man, aged 46, was first seen on Sept. 14, 1926, at which time he said that the disease had begun insidiously three months previously. History of a preceding hyperidrosis or inflammation was not given. Six months previously he had been treated for syphilis, the treatment consisting of one injection of neoarsphenamine, and a number of intravenous injections, probably of some form of mercury. On September 10 the Wassermann reaction was reported to be markedly positive. Over both palms and soles there was a thick, smooth, yellowish, translucent, hard and horny plate. At the time of presentation he was receiving antisyphilitic therapy, and the keratoderma was improving.

DISCUSSION

DR. COLE: I would suggest the diagnosis of syphilis. The lesions are rather symmetrical and in the subacute stage of syphilis the palms and soles are often the only regions involved. I think the condition will clear up with treatment.

DR. OLIVER: The patient developed the lesions three months ago. About six months ago he had treatment in a small town in Wisconsin. I think one injection of neoarsphenamine was given. He afterward had about fourteen injections intravenously, but I do not believe they were neoarsphenamine. The Wassermann reaction was markedly positive. On the strength of that I have been giving him neoarsphenamine and bismuth and also gave him two one-fourth unit doses of roentgen ray on the palms. I am going to stop the roentgenotherapy because I believe the condition is syphilis.

DR. SENEAR: I had an exactly similar case yesterday in a physician, who was accidentally infected six years previously. He received some arsphenamine then but had not taken any since, although he had recently taken some Fowler's solution. He presented exactly the same picture with lesions of the palms and soles, but he had some definite atrophy and some infiltration about the margin of the patches. I regard the lesions as syphilitic and not due to arsenic.

SYNOVIAL LESIONS OF THE SKIN. Presented by DR. BEESON.

A woman, aged 44, presented lesions located on the right and left index fingers. That present on the right side was of a year's duration; the others had existed for about two months. The older lesion was bean-sized, globular, semitranslucent, smooth and covered with a few telangiectatic vessels. It was elevated about 3 mm. and appeared to fluctuate on pressure. It was not fused to the deeper structures. On puncture a colorless jelly-like substance was obtained. Following puncture the lesion filled up again in about three weeks. A roentgenogram did not show any connection with the underlying articulation, which in this case was the distal interphalangeal. The lesions on the left little finger, three in number, were much smaller but apparently similar.

DISCUSSION

DR. FOERSTER: On one of the joints there were multiple lesions, three or four. I think it is unusual to see a number of synovial lesions, as most of them occur singly.

DR. PUSEY: The patient had one lesion that looked like a typical synovial lesion and some others that approximated them. I have never seen so many multiple synovial lesions, but I have seen characteristic single synovial lesions in a husband and wife at the same time.

SCLERODERMA AND IDIOPATHIC ATROPHY. Presented by DR. ORMSBY.

A woman, now aged 22, was first shown before the society in 1909 by the late Dr. Hyde and the case is recorded in the *Journal of Cutaneous Diseases* (**28**:418, 1910). For the last several years the atrophic changes had gradually spread upward over the thighs and hips, forearms and arms. The atrophy was not preceded by scleroderma, or other cutaneous change such as precedes acrodermatitis chronica atrophicans. The hands and feet still showed relics of the old scleroderma and were exceptionally small; the limbs were abnormally short. The patient had improved in general under thyroid therapy during the past one and a half years.

A CASE FOR DIAGNOSIS, ATROPHY OF SKIN (?). Presented by DR. SENEAR.

A man, aged 43, said that thirty years before he fell into a vat of slack lime, scalding his left arm and leg. For the last three months he had felt coldness of the left leg from the knee down, with stiffness and cramping of the knees and ankles which had made walking difficult. He was unable to extend his legs completely because of pain. A swelling of the feet had been present at times, and the calves were sore. He had a bubo in the left inguinal region. He smoked from ten to fifteen cigarettes daily.

Atrophy was observed, with bluish discoloration of the skin over both legs, with cyanosis and a plexus of superficial veins on the left thigh and left side of the pelvis. Depigmentation of the skin across the lower part of the trunk was also present. The left arm from the shoulder down appeared cyanotic and showed a superficial plexus of dilated veins.

Several internists and a neurologist had suggested a diagnosis of intermittent claudication. General examination otherwise was negative.

A section of a vein revealed thickening of the wall, with an increase in fibrous tissue which was hyalinized in places. Proliferation of the lining endothelium and perivascular infiltration were not present.

Roentgen-ray examination of the chest revealed evidences of old hilum tuberculosis, with involvement of the right upper lobe.

DISCUSSION

DR. WILE: I saw Dr. Ormsby's patient before as presenting a case of scleroderma and do not see why we cannot regard it as scleroderma rather than idiopathic atrophy. I am sure atrophy is present, but it may be regarded as the old scleroderma. I wonder if it is not the same process at a later stage.

DR. PUSEY: I have seen an analogous situation with facial atrophy. I once saw a child with a small patch of scleroderma in the center of the cheek which no one would diagnose as any other condition. Five or six years later I saw the same child with a complete, extreme facial hemiatrophy, in which there was atrophy of all the soft structures of the skin and perhaps of the bones. I think that the process in Dr. Ormby's case is exactly analogous to the atrophy that follows scleroderma, and believe that Dr. Senear's case is in the same class. I think one sees failure of development of the bones, tight skin and all the atrophic changes that Dr. Ormby's patient shows which are analogous to the hemiatrophic changes in the face that sometimes follow scleroderma.

PROFESSOR GANS: I do not remember having seen a case in which the scleroderma was followed by general atrophy of this type of dermatrophia progressiva idiopathica chronica. I have, however, seen some cases in which a type of scleroderma developed following atrophy. The histologic picture of these atrophies is characteristic and readily distinguishable.

DR. ORMSBY: My experience with atrophy in scleroderma is limited practically to those cases in which the edematous type of scleroderma is present. After this clears up atrophy usually follows, occurring in bands and streaks. I presented this patient because for years she had not had any sign of scleroderma. The atrophy has not been preceded by scleroderma; it develops gradually, as in cases of idiopathic atrophy. I think the agent that produced the early scleroderma has produced the atrophy, but it is now a primary atrophy of the skin. I think in the edematous cases the atrophy is secondary, but in this case during the last several years the atrophy has been primary.

BLASTOMYCOSIS. Presented by DR. HEDGE.

A man, aged 34, was first seen on Aug. 20, 1926, at the clinic of the Northwestern University Medical School. Eleven weeks previously he had first noticed a small pimple on the left cheek which had discharged some pus and seemed to be increasing in size. At that time the lesion was 15 mm. long and 8 mm. wide, the long axis corresponding to the long axis of the body. There was a heavy yellow crust which greatly resembled an impetigo. At the border, which was somewhat elevated, there were minute abscesses from which a positive culture of blastomyces was obtained. The patient had been treated with the quartz light and had received two injections of neoarsphenamine before he was seen by Dr. Hedge. The condition had responded slightly to the injections, and since that time had cleared up markedly under injections

of sodium iodide, and sulpharsphenamine, and 2½ units of roentgenotherapy. He had received twelve intravenous injections of 2 Gm. of sodium iodide and five of 0.3 Gm. of sulpharsphenamine.

NOTE.—Since presenting this case to the society Dr. Hedge has used a carbon dioxide snow pencil to the border of the active lesion, with most gratifying results. The snow was applied for twelve seconds under moderate pressure.

DISCUSSION

DR. HEDGE: In regard to the abscesses that form in the later stages of the disease, I have had a case in which Dr. Stillians and I were both interested. The man developed one abscess over the sternum, one over the clavicle and one over the wrist. There were not any signs of internal infection except the abscess. Two of the lesions cleared up under roentgenotherapy, and operation was performed on the third, but it has not yet cleared up. I would like to know whether others have had the same experience with surgery in blastomycosis.

PROFESSOR GANS: The only so-called case of blastomycosis I have seen in Europe was one in which rabbits developed tuberculosis after inoculation. Blastomyces were found, however, on culture. Therefore, all the cases which had been published were reviewed, and it was found that in most of the human cases of localized blastomycosis of the skin, it had not been shown that a primary tuberculous infection was not present. In many of these cases the blastomycosis may have been a secondary infection. Nevertheless, localized blastomycosis of the skin is an entity, as I saw one case last week in Rochester and this one today.

DR. PUSEY: I think not as much blastomycosis is being seen as was formerly observed. This is only a minor picture of the condition, and I am glad that the ability to diagnose it is not being lost.

LUPUS ERYTHEMATOSUS DISSEMINATUS (SUBACUTE TYPE). Presented by DR. ORMSBY.

A woman, now aged 36, was first presented before the society at the October, 1925, meeting. A description of the condition at that time is recorded in the ARCHIVES (**13**:554 [April] 1926). The lesions were then distributed over the face, neck, upper chest, forearms and hands, but since that time the cutaneous disorder had cleared up entirely. The treatment consisted of, first, iodoform and later, salicin, together with some indifferent local treatment.

DISCUSSION

PROFESSOR GANS: I have never seen such a remarkable result in the treatment of subacute disseminated lupus erythematosus. With the use of the gold compounds and other treatments I have not had so remarkable a success.

DR. ZEISLER: I would like to know if Dr. Ormsby uniformly gets such nice results. I have repeatedly used iodoform without benefit.

DR. ORMSBY: I have previously shown other cases successfully treated with iodoform. It may be necessary to continue the treatment over a fairly long period to accomplish good results.

A CASE FOR DIAGNOSIS. Presented by DR. WIEN (by invitation).

A Jew, aged 23½, was first seen on Aug. 24, 1926, with numerous pea-sized vesicles on the face and neck. He said that while in the country he had worn an old army coat that became rain-soaked and that the dye stained his collar.

About one week before the onset of the eruption he had taken eight or ten bromoquinine pills because of a cold. At this time lesions were not present on the trunk or in the mouth. Two days later, vesicles appeared on the penis and scrotum, and on September 2, lesions were noted in the mouth near the lip. Later, similar lesions developed on the soft palate, the chest and the back, and there had since been successive crops of bullae in the normal skin at various places, with crusted lesions in the scalp recently.

DISCUSSION

DR. PUSEY: I saw this patient with Dr. Senear and could not convince myself that the condition was pemphigus. Lesions were not seen on the exposed part of the head and neck, and I tried to make a diagnosis of bullous impetigo. The persistence and appearance today make me fear that the condition is pemphigus.

DR. SENEAR: I had not seen the patient since the last time Dr. Pusey and I saw him. My opinion was much the same as his and we always had the question of pemphigus in the background. One thing which was not elicited until recently was the fact that bromoquinine was taken a week before the eruption began. There has been a suggestion of dermatitis herpetiformis as an alternate diagnosis. I would like to hear an expression of opinion as to the diagnosis.

DR. LIEBERTHAL: I consider this a case of dermatitis herpetiformis, in consideration of the outspoken grouping of the lesions, especially around the axillae in front as well as in the back. This, together with the fact that there are scarcely any lesions on the lower extremities, while on the upper part of the body they are copious, speaks against the diagnosis of pemphigus vulgaris.

DR. FOERSTER: I would suggest the use of potassium iodide as a test, as introduced by Jadassohn, to assist in the differentiation from dermatitis herpetiformis. Under iodide medication the lesions of this disorder are said to be accelerated in development, whereas pemphigus is not influenced.

DR. WILE: I wish to express an objection to the evidence suggested by Dr. Foerster. Some years ago when doing some work on iododerma there were two cases of pemphigus in the hospital and both reacted violently to potassium iodide. I cannot see any differential diagnostic value in the test. In those cases new blisters appeared, and it was easy to demonstrate the iodine in the blisters.

LEUKEMID. Presented by DR. ORMSBY.

A man, aged 48, was first seen on Dec. 30, 1925, at which time an intensely itching disorder of eleven months' duration was present. Examination revealed cervical adenopathy, and a general papulovesicular eruption involving the entire cutaneous surface, including the scalp. A blood count showed: leukocytes 12,600; differential count — polymorphonuclears 35 per cent, small lymphocytes 53 per cent, large lymphocytes 6 per cent, eosinophiles 3 per cent and transitionals 2 per cent. Three months later there were 30,000 leukocytes; and the differential count showed: polymorphonuclears 15 per cent, large lymphocytes 35 per cent and small lymphocytes 50 per cent. The count when the patient was presented showed: 29,000 leukocytes; and the differential — polymorphonuclears 24 per cent, large lymphocytes 55 per cent, small lymphocytes 17 per cent and basket forms 14 per cent.

With roentgenotherapy and arsphenamine the cutaneous manifestations were cleared up for several months, but recently there was a recurrence. The lesions were generalized but sparsely scattered over the cutaneous surface and consisted of follicular papules and vesicopapules situated on an erythematous base. The itching was much less severe.

DISCUSSION

DR. COLE: I think when these cases with a so-called prurigo-like exanthem are seen they are always suspicious of a beginning Hodgkin's disease, or of a leukemia, but an examination of the blood might be made to see if it will be of any assistance.

CASE FOR DIAGNOSIS, LENTIGO (GENERALIZED [?]). Presented by DR. FINNERUD.

A girl, aged 9, American born, but of Polish descent, had an eruption on the neck, trunk and extremities of two years' duration, devoid of subjective symptoms. It was most marked on the back and sides of the neck where it was first noticed. Within a few weeks after its appearance on the neck, similar brown spots were noticed on all surfaces of the trunk, thighs, legs, arms and forearms, although the majority of the body lesions had appeared within the last six months. The child's foster-mother stated that the patient had always had an unusually fair skin, with not a freckle on it, until these brown spots appeared. The child had a brother and sister, both living and well, with a negative history of skin disease. The patient was one of twins, full term, and was said to have always been more delicate than the twin sister, but aside from bronchitis and tonsillitis every winter she had always been in good general health. The tonsils had been removed recently.

Examination showed numerous match-head to peasized or larger, discrete, round, oval and irregularly shaped light brown macules on the neck, trunk and extremities, most marked on the neck and extremities. No lesions were present on the hands, feet or face, and the mucous membranes of the mouth were of normal appearance. On the forearms and legs the light brown discoloration was practically diffuse, and in the popliteal spaces it was of vitiliginous appearance. The lesions did not urticate with rubbing. There was possibly some reticulated atrophy of the neck and shoulders behind. The Wassermann reaction was negative and the Pirquet test weakly positive. The urinalysis was negative and the blood chemistry showed readings as follows: urea, 34 mg. per hundred cubic centimeters of blood; urea nitrogen, 11 mg. per hundred cubic centimeters of blood; uric acid, 2.7 mg. per hundred cubic centimeters of blood; creatinine, 1.05 mg. per hundred cubic centimeters of blood; sugar 93 mg. per hundred cubic centimeters of blood, and nonprotein nitrogen, 30 mg. per hundred cubic centimeters of blood.

Pulse, respiration and body temperature were normal, as was the differential leukocyte count of the blood. A roentgenogram of the chest showed increased lung shadows on both sides with innumerable shadows of the small calcified glands at each hilus and some fibrosis in the upper lobes. The basal metabolic rate was plus 7. A biopsy had not yet been obtained.

DISCUSSION

PROFESSOR GANS: I think the case is one of vitiligo. In all the pigmented spots the basal cells have recovered their ability to produce pigment again. I would be interested to know whether or not this girl shows a positive dopa reaction in the vicinity of these spots.

SARCOMA (KAPOSI'S [?]). Presented by DR. PUSEY and DR. WEBER.

A man, aged 53, an American, first developed tumors on the front and outer side of the lower part of the right leg five months before presentation. He stated that about fifteen years before this leg was bruised. The lesions began as discolored patches and flat infiltrations with a purplish hue, and were followed by painless nodules which appeared on the patches. They varied in size, and some were rounded while others were flat. Many were smooth on the surface, and others were covered with a crust. Occasionally some of the lesions had bled on slight injury. Several had disappeared spontaneously, leaving a slight scar. The leg was edematous from over the tibia to within 3 cm. of the knee. The inguinal glands were not enlarged, and since the patient had been under observation there had not been any perceptible change in the lesions, but a small inguinal mass had appeared.

DISCUSSION

DR. WILE: To me the lesions looked very much like a chronic bromide exanthem — a bromoderma. I would like to test a sample of the man's urine in order to exclude a bromide eruption.

DR. PUSEY: To my mind the diagnosis rests between true angiosarcoma and Kaposi's so-called sarcoma. The section presented, while not perfectly typical, lends probability to this diagnosis. I asked Dr. Lieberthal to see the patient, and I think his opinion agrees with mine; that it is probably Kaposi's disease, but that there is room for some doubt. It is rare for Kaposi's disease to be confined to one leg and not to be more extensive than this. The lesions here tend more to be fungoid than is usual for lesions of this size in Kaposi's disease, and many of them are deep seated. I do not believe that bromoderma need be considered or that the condition would on close inspection suggest it. Bromoderma does not occur as subcutaneous nodules or as deep blue, highly vascular nodules, covered by healthy epidermis, as are some of the nodules in this case, and in so extensive a case the eruption is not likely to be unilateral.

DR. LIEBERTHAL: The diagnosis of multiple hemorrhagic sarcoma should be considered in this case, in spite of the fact that the lesions are only on one side and that no flat infiltrations are present, but this may be on account of recent development. I had occasion to see a histologic section. Unfortunately it was a poor specimen, and yet some signs could be seen which pointed to that diagnosis — blood vessels with thickened walls and newly formed ones, irregular cellular masses and numerous interstitial heaps of blood pigment.

PRURITUS ESSENTIALIS. Presented by DR. ORMSBY.

A man, aged 51, had been treating himself for supposed scabies for a year, during which time he had used thirty boxes of a proprietary preparation called "the one day treatment for scabies." As might be anticipated he had not received any relief from the general pruritus.

DARIER'S DISEASE WITH LESIONS ON THE MUCOUS MEMBRANE (KERATOSIS FOLLICULARIS). Presented by DR. FINK (by invitation).

A boy, aged 18, presented a disorder of seven years' duration. It began on the forehead and scalp, and during the last two years had spread to the chest, back and clavicular region, the dorsum of the hands having recently become involved. When first seen, in August, 1926, he presented brownish

yellow, follicular, keratotic papules, with a verrucous, crusted appearance in the foregoing areas. The disorder was much worse in the hot weather and was accompanied by rather severe itching.

On examination of the mouth, the hard palate was found to be covered by thickly sown, small, whitish papules.

PELLAGRA (ALCOHOLIC). Presented by DR. OLIVER and DR. FINNERUD.

A man, aged 39, entered the Cook County Hospital because of an eruption on the backs of the hands of two weeks' duration. He stated that the backs of the hands rather suddenly became dull red and swollen. The skin seemed loose at first but was now sore from drying. For the last week or ten days he had been having from twelve to fourteen bowel movements daily. He said that for the last year he had been drinking "moonshine" steadily, and that he was nervously exhausted and had loss of appetite.

Examination showed a well defined scaling and crusting diffuse dermatitis on the backs of the hands, with considerable fissuring. The involvement did not extend onto the flexor surface of the wrists and forearms. A marked tremor was present in the hands and tongue, and the breath smelled strongly of acetone. Aside from slight hyperemia of the sides of the tongue, the mouth was without noteworthy change.

DISCUSSION

DR. WILE: I wonder whether this case can with propriety be spoken of as pellagra. I think that pellagra is so evidently a deficiency disease, associated with mental, gastro-intestinal and cutaneous symptoms, that an eruption coming on after an alcoholic debauch cannot properly be called pellagra.

DR. PUSEY: The French have described a pseudopellagra which occurs in alcoholic persons.

DR. GOODMAN (New York): I have seen a great many similar cases, and it occurs to me that it is not the alcohol that gives the patients the opportunity to develop the lesions but the fact that while on the alcoholic "bat" they do not eat. I have known of several cases in which the patients have not had anything to eat for several days and the pellagra is due to the deficiency. I thought they would not all live but they have. They show the mucous membrane lesions that simulate pellagra, but I have never seen the butterfly lesions which are observed in true pellagra. I think it is proper to raise the question as to whether one is justified in calling them pellagra or pseudopellagra.

DR. ZEISLER: I would like to defend the diagnosis of pellagra. The man has the beefy-red tongue with the plaques underneath; he has a sharply defined erythema and a severe diarrhea; and I think there is justification in calling the condition at least a pellagra-like syndrome.

DR. COLE: I have recently seen a case like this with the history that the patient had been living on canned heat for several months. He had had practically nothing else, and while he was in the hospital, he became totally blind. He had a characteristic case of pellagra, the clinical and mental disturbances and all.

DR. OLIVER: There have been in the last year about six cases of true pellagra in the Cook County Hospital. This case was not presented as true pellagra but as alcoholic pseudopellagra.

DR. STILLIANS: Why may we not say that the alcohol was a predisposing cause of the pellagra? I think that this patient had a case of true pellagra.

DR. ORMSBY: During the time that I was working on the pellagra commission I saw a large number of cases of pellagra, and also several which were classed as alcoholic pseudopellagra, for the reason that while the symptoms suggested pellagra they were not the classic symptoms. Chronic alcoholism may interfere with the nutrition and thus produce the pellagra-like symptoms.

DR. O'LEARY: I also favor the diagnosis of pellagra, and would qualify it by calling it a secondary type of pellagra rather than alcoholic. Patients are not infrequently seen who present the clinical syndrome of pellagra in addition to an obstructive lesion of the gastro-intestinal tract, such as carcinoma or a malfunctioning gastro-enterostomy, which was performed for the relief of a duodenal ulcer. It is my belief that the pellagra develops as a result of the dietetic insufficiency, the result of the mechanical interference with the ingestion of food. In other words the carcinoma or ulcer *per se* do not produce the pellagrinous complex. I believe that the ingestion of alcohol, particularly the grade purchased by this patient, would act in a similar capacity to the gastric carcinoma or the ulcer in inciting a dietetic insufficiency.

DR. GOODMAN: I would like to know whether anybody has had such a case of pellagra in which there was recovery. My experience with this pseudo or alcoholic pellagra-like disease in New York has been limited to the year past, and I would like to wait until this winter is over to see whether the patients will return with similar symptoms before considering them cured. Comparing the true pellagra which I have seen with this other type, I must confess that one is confronted with diagnostic difficulties.

ULCER OF FOREARM (A CASE FOR DIAGNOSIS). Presented by DR. MITCHELL.

A youth, aged 19, was first presented at the January, 1926, meeting of the society, with a history of having been bitten by a mosquito, following which a furuncle developed. At the time of the first presentation there was an ulcer on the flexor surface of the forearm 4 by 6.5 cm. The border was soft and undermined for a distance of from 1 to 2 cm. The overlapping border was freely movable. The discharge was rather profuse, but not malodorous. Regional or axillary adenopathy was not present. The pus consisted largely of polymorphonuclear leukocytes containing large numbers of *Streptococcus hemolyticus*. There were also many large epithelial cells of the prickle-cell type. Other organisms had not been found either in the discharge or in the tissue. Since the demonstration of the case in January there had been two severe attacks of ascending lymphangitis, both of which yielded to hot packs and rest in bed. The patient's serum agglutinated the streptococci in high dilution. The Wassermann reactions had been completely negative. Arsphenamine therapy was without effect. Under Dakin's solution and streptococcus vaccine therapy the original ulcer had healed, but it remained active at one point in the border, and from there had spread. Filtered and unfiltered roentgen rays, quartz light, intravenous calcium and milk powder injections had all been used. At present the patient seemed to be improving on potassium iodide by mouth, to the point of tolerance.

DISCUSSION

DR. GOODMAN: Several years ago a man was presented before the Academy of Medicine and everywhere else in New York with a local picture that was much like this. The diagnosis which was insisted on was tertiary syphilis, but the patient was quite free from the stigmas of that disease. Arsphenamine

was used at every opportunity, without any amelioration of the symptoms. On one occasion the patient was scrubbed thoroughly with soap and water and then given potassium iodide by mouth and sodium iodide intravenously. It was thought that the condition might be a mycotic lesion of some type but organisms could never be found that would fit into anything definite. I think that the soap and water did more than the potassium iodide or the sodium.

PROFESSOR GANS: On looking at the slides from this case I did not receive the impression that there was present an acute active disease, such as is found when the *Streptococcus hemolyticus* is the cause of the disease. I believe that it is a subacute or chronic form of an infective disease, not of the type one is accustomed to see in syphilitic infection. Under the higher magnification bodies like blastomycetes were found, but they differed in that they did not stain with hematoxylin. It seems that these bodies are not there by accident, because they were situated in the center of a specific inflammatory tissue reaction. In one of the organisms a form of budding was noted. I have not had enough experience to be sure that these bodies are the cause of the disease.

PSORIASIS (OF UNUSUAL DISTRIBUTION). Presented by DR. OLIVER and DR. FINNERUD.

An unmarried woman, aged 22, came to the Cook County Hospital because of an eruption chiefly of the palms and soles, of five months' duration. She complained of soreness and slight itching. The eruption began on the palms simultaneously, and a few weeks later it appeared on the left sole. Since that time she had noticed involvement of the skin of the hands and feet elsewhere, on the umbilicus and in the ears. She had not had any previous skin disorder.

Examination showed well defined erythematous scaling plaques with slight infiltration on the palms and soles, sides of the feet, back of one hand and each external auditory meatus. In the last mentioned location, and about the umbilicus, the scales were yellowish and greasy, whereas the scales of the other lesions were silvery, thin and glistening. There was also a dime-sized scaling patch of the occiput. The nails did not show any noteworthy changes.

DISCUSSION

DR. HEDGE: About four years ago I presented a patient with lesions of the palms only, and on looking up the literature found that practically every one said it was impossible to have psoriasis of the palms alone. The patient had had the lesions for twelve years. Two years later lesions developed on the feet. She disappeared for a year and a half, and when I last saw her typical lesions had developed on both elbows. The diagnosis of psoriasis was questioned by some who saw her at that time.

DR. MITCHELL: It occurred to me that part of the lesions might have been mycotic, particularly those in the fourth interspace, and I would like to know whether mycotic organisms have been found.

DR. OLIVER: There has not been an opportunity to make such an examination yet, for the patient was seen only yesterday.

DR. GOODMAN: I have not had any luck in similar cases of patients showing lesions of the palms and soles. An organism has not been found in the palmar lesions, although it was easy to find them in the skin of the toe cleft. Dr. Williams suggested that the palmar lesions might be likened to tricophytid.

DR. FINNERUD: This patient also had lesions on the legs, the umbilicus and the scalp.

SARCOID. Presented by DR. STILLIANS.

A negress, aged 23, had an eruption on the backs of the arms and a profuse eruption on the buttocks and lower legs, with a few lesions on the trunk. The onset was said to have occurred suddenly in December, 1925. The only subjective symptom was the slight tenderness of the lesions. The eruption consisted of lesions of three types varying in size from that of a pinhead to that of a bean. Some were depigmented macules, which on pressure showed deep infiltration and slight tenderness; some were elevated and depigmented, with brownish red centers, and some had an elevated, soft papule in the brownish zone. All the lesions seemed to follow lymph channels.

A biopsy revealed circumscribed areas of infiltration composed of epithelioid cells, with varying numbers of small round cells which were especially marked in the outer zone.

The blood Wassermann reaction was negative, as were the results of the physical and roentgenologic examination of the chest.

SARCOID. Presented by DR. STILLIANS.

A negress, aged 26, had an eruption which was said to have begun in November, 1925, with the appearance of a single lesion on the forehead. The disorder had spread slowly, involving chiefly the extensor surfaces of both arms, buttocks and legs. It consisted of lesions varying in size from that of a bean to that of a pigeon egg, which were painless except on pressure, and showed the three types seen in the preceding case. The blood Wassermann reaction was negative. She gave a history of influenza in 1919. A skiagram of the chest showed the following observations: "Apices light up in a fair manner. The diaphragmatic excursion is lame, bilateral. Stereoplates reveal increased hilus, bronchial and pulmonary markings in the form of mottling throughout both middle and lower lobes and extending into both apices in a much lesser degree. What appears to be an interlobar pleural thickening is also present in the middle right lung field. Heart and aorta are somewhat wider than normal."

The biopsy revealed circumscribed granulomatous areas situated in the epidermis, in the upper corium and subcutaneously, being especially marked among the hair follicles and glands. The areas were composed of epithelioid cells with a dense outer zone of small round cells. Small areas undergoing necrosis were also seen.

DISCUSSION

DR. STILLIANS: I presented these cases especially because of the pigment disturbance and because they appeared like sarcoid of the Darier type, and later presented at the center apple jelly nodules. The early blanching of the skin over the nodules is peculiar, for the section shows plenty of pigment, no different from that of the normal skin.

Book Reviews

DERMATOLOGIA Y SIFILOGRAFIA. POR EL DR. VICENTE PARDO CASTELLO. Pp. 730, with 208 illustrations. Habana, Republica de Cuba, 1927.

This book attracts one immediately by the old world look of its make-up. The outer and inner bindings are reminiscent. The type is clear; the photographs are timely. There are typographic errors, but the reviewer need not be disturbed by them.

Pardo's text is made up along the lines of the better North American texts with which one is acquainted. The heading difficulties are the same: under the heading "New Growth" are discussed rhinoscleroma, tuberculosis of the skin, leprosy, yaws and other conditions. Ulcerative granuloma of the pudenda receives only modest attention, although Pardo has written extensively on this interesting condition. He rightly mentions that the 1 per cent solution of antimony potassium tartrate should be sterilized by filtration, as heat decomposes the double salt. Many of the therapeutic failures reported for this drug in granuloma inguinale have undoubtedly been due to the fact that the solution was boiled. How the error crept into the literature is of interest, but discussion of this is reserved for another time.

The chapters on syphilis are undoubtedly written from Pardo's individual ideas, with some adherance to general practice. The heading of fourth period of syphilis is retained, with several paragraphs explaining the modern attitude. The accidents of therapy in the arsenical group are given proper importance.

All in all, this book is a triumph for its author. Had it been written in English, for English speaking physicians, it would find ready distribution among them. There is every reason to believe that it will find ready distribution easily enough among the physicians of the Spanish speaking communities. It will provide a decided North American influence among these physicians, for it will tend to act as an entering wedge for similar books in other fields of medicine and surgery.

PUBLICATIONS FROM THE RESEARCH INSTITUTE OF CUTANEOUS MEDICINE OF PHILADELPHIA, 1924-1926.

The sixth volume of the publications from the Research Institute of Cutaneous Medicine has been issued. It covers publications of work done from 1924 to 1926—work ranging over widely separated problems in the fields of dermatology and syphilology. This volume is an evidence of great and intelligent activity. The institute and its workers are showing the highest scientific zeal and industry, and are making useful contributions on many aspects of their subjects.

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